

Scorpaena rubropunctata
polycephala

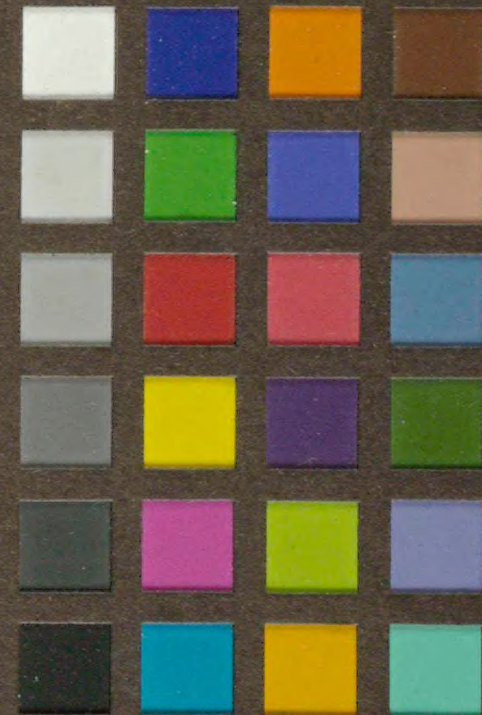
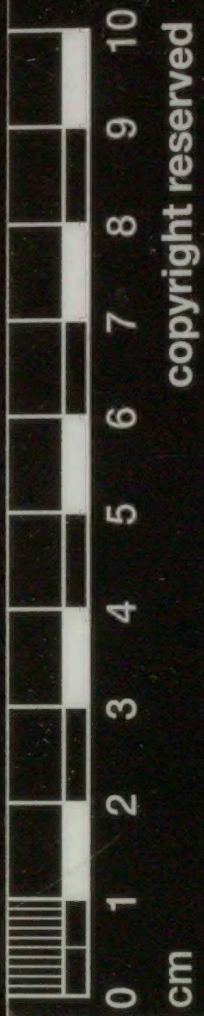
Scorpaena *suamensis*
nubilosa, Garrett.

B. 7; D. 13+9; A. 3-6; V. 1-5; P. 7-11; C. 5-1, 6, 5, 1, 4.

The upper line of the body is rather strongly arched, being highest at the sixth or seventh dorsal spine. The head is not quite a third of the total length. Its thickness as compared to length is as two to three. The eyes are circular, their diameter entering four times in the length of the head, and once in advance of their own orbits. The hinder tip of the maxillary reaches a little posterior to the center of the eye. Minute scales may be observed on the cheeks and opercular pieces. The spines on the head are garnished with little filaments, and similar ones may be traced along the lateral line. A palmate cirri marks the position of the nostrils.

The dorsal fin commences a little in advance of the opercular corner. Its spiny portion is rather low, arched in outline, the fifth or sixth ray tallest, and the others gradually decrease either way. The soft portion is higher than the spinous, which height equals the length of its own base, and its upper margin is obliquely

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rounded.

Color of the living fish dark gray, and mottled with different shades of dusky-brown. A conspicuous diffuse black spot on the opercle. Irides silvery-yellow and ringed with brown. The fins have a dull yellow ground color marbled with different shades of brown; the marblings are disposed transverse or slightly oblique to the rays.

Length, 4 inches

Habitat. Society Isls.

Remarks.—This is the commonest species inhabiting the above locations. Its most obvious characters is its low dorsal and the black opercular spot.

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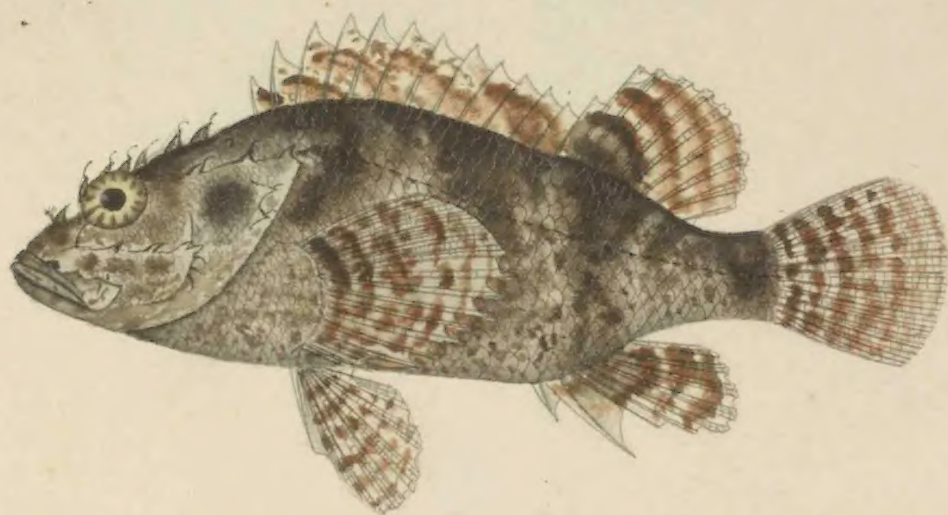


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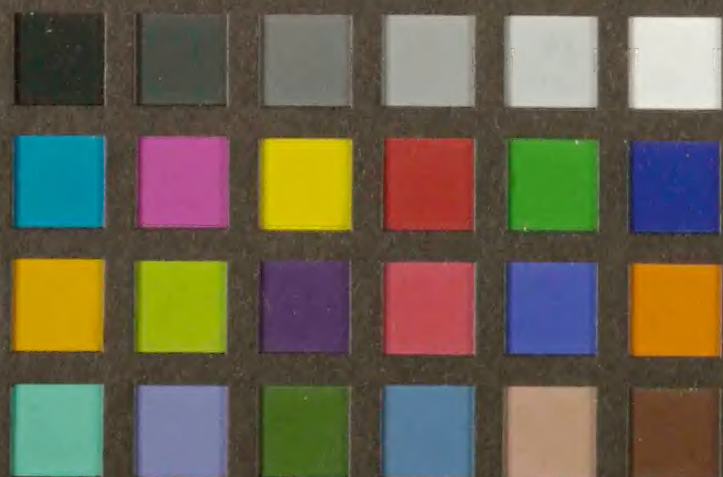
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Scorpaena guamensis

Scorpaena guamensis



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Scorpaena parvipinnis, Garrett.

D. 13-10; A. 3-5; V. 1-5; P. 7-9; C. 5, 1, 6, 5, 1, 3.

In this species the upper and lower outlines are quite similar, being gently arched. The greatest depth of the body falls slightly short of one-third of the total length and the greatest thickness at the base of the head is a little more than two-thirds of the above mentioned depth. The head constitutes just one-third of the ^{whole} fish. The eye is large, circular, its diameter being nearly one-fourth of the length of the head. Four spines may be seen along the upper edge of the orbit, and the same number in each side of the occipital region and nape, the posterior one the larger. Two intraorbital spines, one on the nasal bone, and a longitudinal row of four along the suprathympanic region. Two on the opercle, the lower one long and projecting posterior to the margin of that bone. At least one may be observed in the humeral region, one on the infraorbital, three on the margin of the preopercle, and a longitudinal row of irregular disposed ones along the cheek. The lower jaw is slightly longer than the upper, and the tip of the maxillary extends as far back as the hinder border of the eye. Fine scales envelope the basal portion of all the fins except the ventrals, and cover all parts of the head except the jaws and lower half of the maxillary bone. Minute filaments are observed in all parts of the fish, being more numerous in the anterior third of the body. The dorsal and anal fins are small, the former commencing above the origin of the

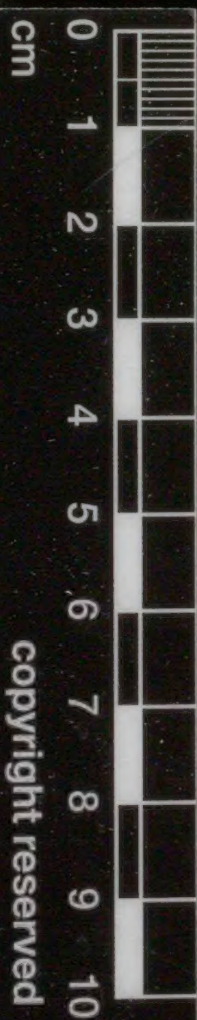


lateral line. The spiny portion of the dorsal is very low, gently arched, and constitutes nearly two-thirds of the fin. The soft portion of the anal fin is very narrow and rounded off.

The head and anterior half of the body is grayish, passing into light carnation beneath, and obscurely clouded with dusky. The posterior half of the body is dusky, which fades into pink beneath, maculated with small darker spots. The caudal trunk is pink. Two large dusky spots on the anterior dorsal region. Gills greenish yellow. Fins pinky-red, the spiny anal mottled with dusky, and the other fins dotted with pinky-brown, and a bar of the same color on the caudal base.

Length 4 inches.

Hab. - Sandwich Isls

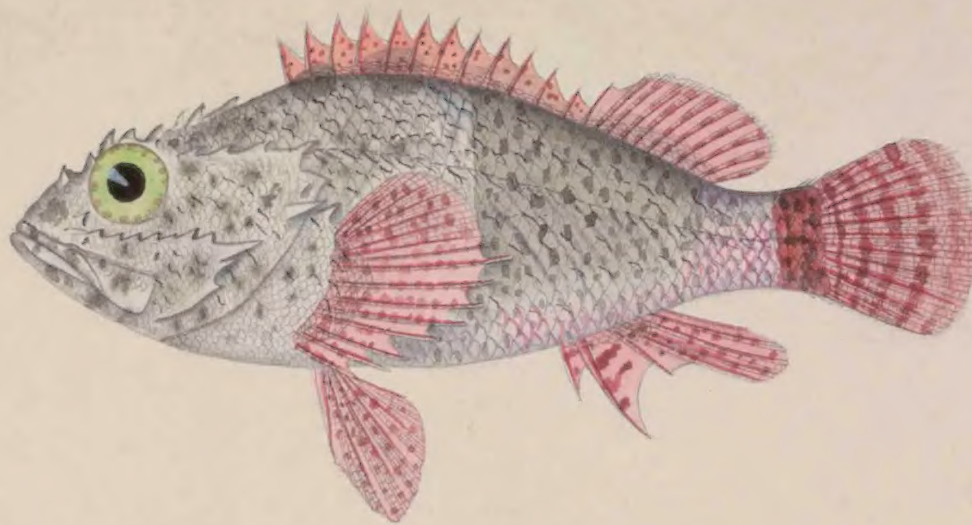


Scorpaena parvipinnis
t. 52. f. D.

60

Scorpaena parvipinnis

chilopr.



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Scorpaena costii, ^{Shw}

Scorpaena No 371

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D. 12-9; A. 3-4; N. 1-5; P. 18; C. 5; 1, 6, 5, 1, 4.

Color dusky brown on the upper half with darker marblings, and the lower half rich yellow, beautifully mottled with different shades of brown and light vermillion. The cutaneous cirrhi whitish. Jaws transversely barred with brown and blackish. The cirrhi attached to the lower jaw are light yellow. The upper portion of the head is blotched with light yellow, two similar blotches on the back and one on the caudal trunk. Irides greenish yellow, rayed with brown-black. The dorsal fin is beautifully marked with different shades of brown and reddish on a faded yellow ground. The marblings assuming oblique cloud-like bands. The caudal is similarly marked, but the striped marblings are transverse to the rays and more or less interrupted. The anal is pale blotched with vermillion in which are dashes of brown. The ventrals are light vermillion and marbled like the anal. The pectorals are rich yellow and beautifully marbled in stripes parallel to the curvature of their base.

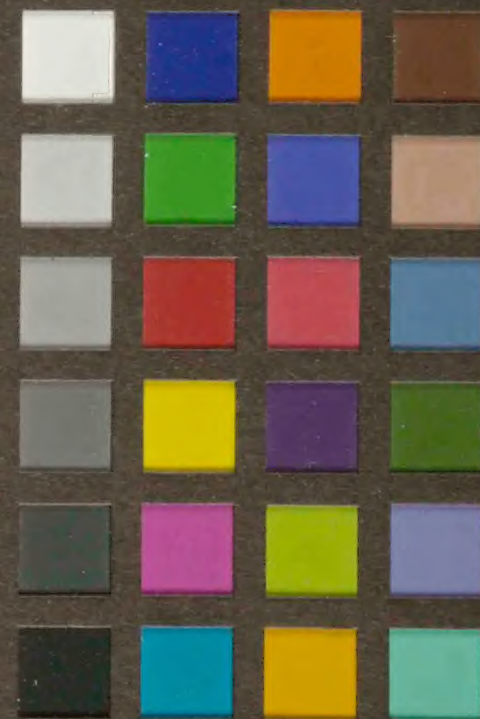
The greatest depth at the base of the head is a little more than a fourth of the entire length. The dorsal region is slightly concave at the posterior third of the spiny dorsal. The head comprises about one-third of the fish. The eyes as compared to the length of the head is as one-to-six. The whole upper half of the head is jagged with spines

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which are disposed as follows: two near the nostrils, three on the superior crest of the orbits all curved backward, and several of various sizes behind the orbit; one at the origin of the lateral line, two or three on the opercle, a horizontal range of several on the cheek, and two or three on the preopercle margin. The hinder preopercle margin is furnished with five cutaneous cirri and two on the cheek. There are also two near the upper jaw, one of which is lacinated, and five similar lacinated one suspended from each side of the lower jaw.

For the structure of the fins see the drawing.

Length 10 inches.

Hab. - Sandwich Isls.



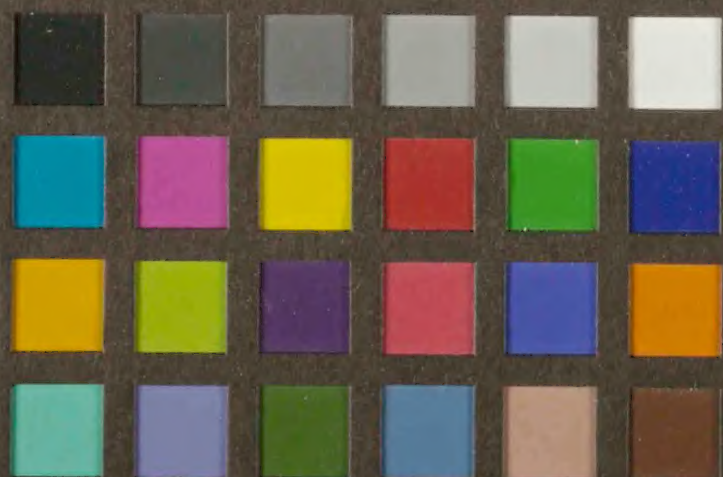
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Fig. Taf. 55 *Scorpaena cookii*



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Scorpaena cookii



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Family Scorpaenidae, Swainson

The body is covered with scales, though sometimes naked; when they exist they are ctenoid in structure. The head is generally large, more or less spinous, and often exhibiting cutaneous appendages which gives them a hideous aspect. The two dorsals are more or less combined, and the spiny portion is the longer.

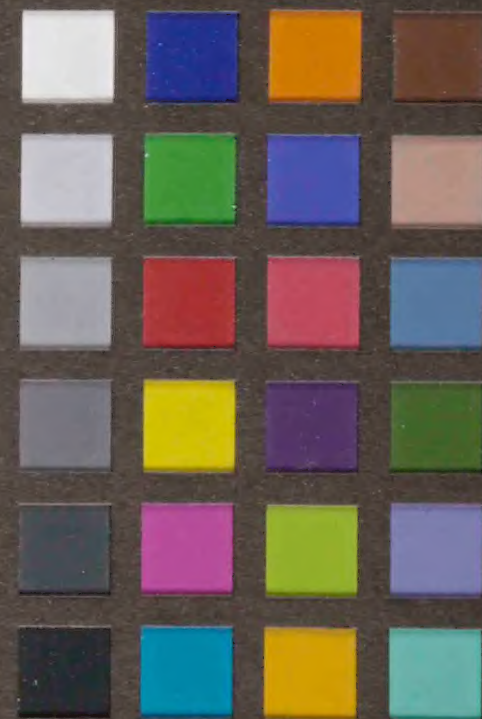
Genus Scorpaena, Artedi.

Body oblong, compressed. Scales small, Head large, compressed, slightly scaled or naked, more or less spinous and furnished with cutaneous flaps. Mouth large, oblique; lower jaw the longer. Jaws, vomer and palatines armed with villiform teeth, disposed in bands. Eyes interrupting the upper line of profile. Lateral line concurrent with the dorsal outline. Branchiostegal rays seven. The long spiny dorsal is more or less united to the soft part. Caudal rounded. Anal opposite to the soft dorsal, smaller than the latter fin and more distant from the base of the caudal. Ventrals ovate,

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and inserted posterior to the pectorals. The pectorals are very broad, rounded, and have stout undivided lower rays.

These fishes, though eaten by the natives, are much dreaded in consequence of the painful wounds inflicted by their spines.

Scorpaenidae

Scorpaena variegata, Garro.

B. 7; D. 12-9; A. 3-5; V. 1-5; P. 8-12; C. 5, 1, 6, 5, 1, 4.

The greatest depth of the body immediately above the base of the ventrals, equals the length of the spinous portion of the dorsal, and the greatest thickness at the same point is three-fourth of the above mentioned depth. The large head constitutes one-third of the total length. The eyes are large, longitudinally oval, their length as compared to the head is as one to five. The hinder tip of the maxillary is on a plane with the posterior border of the pupil. The upper posterior portion of the head is covered with very small scales, and its inferior half is ornamented with numerous simple and pinnated flaps, the latter much the larger.

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Like the body, the dorsal and pectorals may be observed numerous short slender filaments, and a series of large pinnate ones along the lateral line. The superior orbital spines are three in number and strongly recurved. The occipital region is furnished with several similar spines, some of which are tipped with little filaments. A single spine on the scapular bone, two in advance of the eye, two at the termination of the opercle, a longitudinal row along the cheek and triangular ones on the preopercular margin.

The first spiny ray of the dorsal fin is very short, the second being nearly as tall as the third, which latter is the highest, and is equal to one-third of the length of the base of that portion of the fin. The soft portion of the dorsal is united to the spinous for half its height, and is gently arched along its superior margin. The last ray is bound by a membrane to the trunk of the caudal. The anal is deeper than the soft part of the dorsal, but much shorter along its base. The length of the pectorals and caudal are equal.

Color dull rose-red, with blackish brown mottlings. Belly bright vermilion-red. Beneath the head and breast minutely and



profusely punctured with grayish, brown and
 carmine-red. I urbi and tentacular appendages
 rose-red. Body minutely and closely dotted
 with white. The inner portion of the sides
 are golden yellow and their outer parts are
 -red which is articulated with brown. All
 the fins are beautifully marbled with
 different shades of brown, rose-red and gray-
 ish. The ventrals and anal have their mar-
 blings on a lively vermilion-red ground.
 On all the fins, except the dorsal, the
 marblings run transvers to the rays, in
 the former the are more or less oblique.

Length, 10 inches.

Habitat. Society Isls.

Remarks. - a rare and beautiful
 species, of which I have seen two examples.
 The colored drawing was made from an
 individual which had been dead several
 hours, and no doubt much changed in
 its colors.

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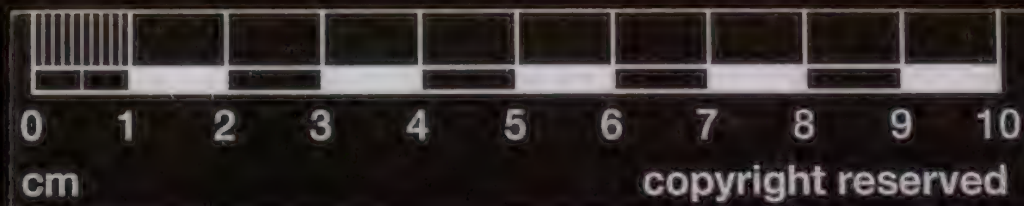


Taf. 54. Scorpaena cirrhosa



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Scorpaena cirrhosa



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Scorpaena cinerea, 48

Scorpaena No 456

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D. 12-10; A. 2-5; V. 12; P. 5-11; B. 2, 4, 4, 5, 1, 1.

This little species which was procured at the Sandwich Island, may possibly be the young of some other species.

Color brown with darker clouds, the head clouded black, its lower part, breast and abdomen faintly flesh. Jaw and lower part of head barred with brown. Inside brown with a cloud of minute black points. Dorsal olive green, the spinous portion red above. The soft portion nearly colorless on its upper half and the rays dotted with brown, all the other fins more or less mottled with shades of brown.

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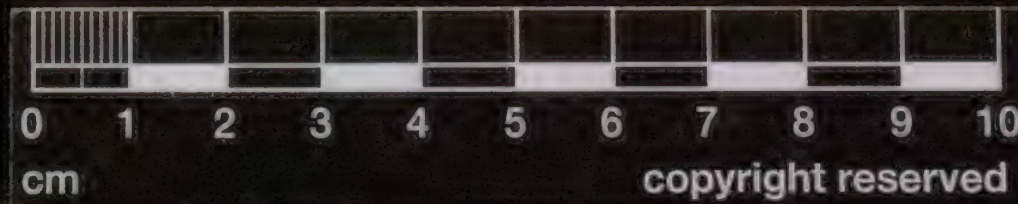
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? *Scorpaena cinerea*

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Scorpaena sp.
light green fish.

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Scorpaenidae No 423

D. 12-9; A. 3-5; V. 1-5; P. 5-12; C. 3, 1, 6, 5, 1, 2.

The depth of the body over the insertions of the ventrals equals about a fourth of the total length. The head comprises about a third of the fish. The eye is sub-circular, its diameter entering about five times in the length of the head. The nasal bone is furnished with a flat fimbriated appendage. The anterior margin of the maxillary is in a plane with the posterior border of the eye. Lacinated cirrhi on the lower jaw sides head, body, pectorals, and dorsal fin. Two large ones between the orbits. Spines disposed as follows: 1 on nasal bone, 3 behind the orbit, 3 at the origin lateral line, 2 on opercle, 1 on shoulder, 3 radiating one directed forward near the upper lip, 4 on the cheek 4 or 5 on the preopercle. Scales small, a small patch behind eye and a few on the upper part of the opercle.

Dorsal fin has the third spine the tallest, graduated posteriorly so that the 11th is only half as tall as the 12th or last.

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which seems to belong to the soft portion
the fin. (For shape of other fins see drawing.)

Color: body mottled with different shades
of brown, lead color and dotted with diluted white.
Abdomen yellowish with pale spots. Head deeper
brown with minute pale bluish dots. The
cirri are pale pinkish, whitish, and, sometimes
with brown bars. Sides pale greenish with
radiating brown bars. Spines dorsal olive-
green, mottled with darker. All the other
fins beautifully marbled with different
shades of brown, whitish and red.

Length 4 inches.

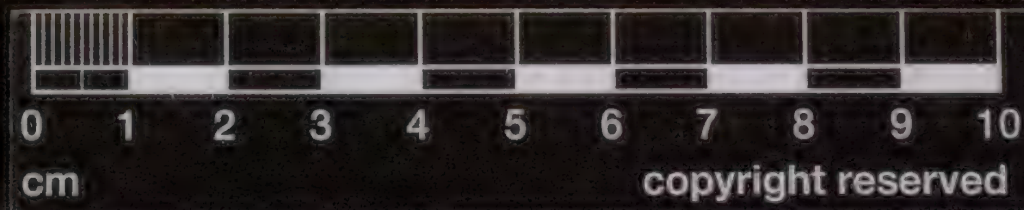
Hab. Society Isls.



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Scorpaena sp.

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Scorpaena sp.*Scorpaena punctata*, Günth.

B. 7; D. 2-4; A. 5-6; V. 1-5; P. 4-10; C. 4, 1, 6, 5, 1, 3.

The greatest depth of the body, which is over the ventrals is three-tenths of the total length, and the thickness at the same place equals two-thirds of the depth just alluded to. The head comprises a triple more than one-third of the fish. The large eyes are sub-circular, their diameter entering three and a half times in the length of the head. The hinder tip of the maxillary reaches a little behind the pupil of the eye. The spines on the head are stoutly developed. There scales.

The dorsal fin starts from a point a little in advance of the origin of the lateral line. Its spiny portion is very deep, strongly arched and the third ray is the tallest. Its soft portion, which is as deep as long, is not so high as the spiny, and is rounded above. The anal fin is deeper than the fin above.

Color of an alcoholic specimen pale grayish-brown, with brown clouds. A few brown dots on the breast and belly. Fins pale and dotted with brown.

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Length, 5 1/2 inches.

Habitat. Society Is.

Remarks. - Having seen but a single specimen of this species, I unfortunately placed it in alcohol before noting its colors. It is remarkable for the high, well arched spinous dorsal and dotted fins.



Scorpaena sp. sub.*Scorpaena nana*, Garroth.

D. 12-14; A. 3-5; V. 1-5; P. 7-9; C. 2, 1, 6, 5, 1, 1.

The head comprises a trifle more than a third of the fish and its greatest thickness is one-fifth of the total length. The hinder end of the maxillary reaches a little behind the eyes, which latter are one-fourth the length of the head. The greatest depth of the body falls a little short of one-third of the total length. Minute filaments may be observed on the body and spiny dorsal; also a few larger ones on the head, some of which are flat with gaster margins. The upper posterior part of the head is scaly.

The dorsal fin takes its origin far in advance of the hinder angle of the opercle. Its spiny portion is rather deep, strongly arched, the rays graduated either way from the fifth or sixth which are the tallest.

Color pale greenish-gray, with large brownish clouds, and dotted with whitish freckles. The breast is minutely punctured with black. Lips transversely barred with brownish and greenish-yellow. The external half of the sides are greenish yellow, articulated with brownish bronze and their inner

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half is silvery. The dorsal, anal and ventrals are pale, with more or less intense brown markings. Caudal and pectorals pale with their rays spotted with brown.

Length, 3 inches.

Habitat. Society Is.

Remarks.—This little species in the shape of its spiny dorsal is intermediate to S. umbilosa and S. punctata.

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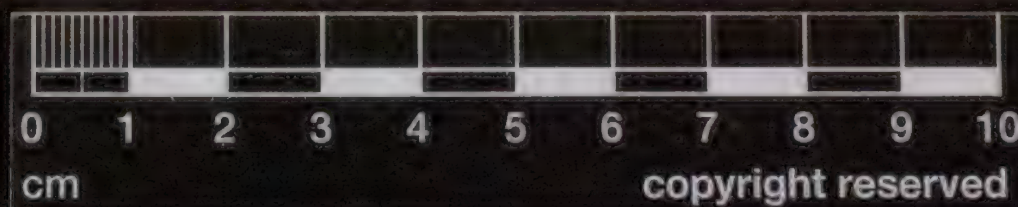
Scorpaena sp.

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Politeus Gmelin
Stercoris spectabilis, Garroth.

B. 7; D. 12-12; A. 3-5; V. 5; P. 10; C. 3, 1, 3, 3, 1, 3.

The head comprises a fourth of the total length, or about equal to the greatest depth of the body. The greatest thickness which is at the base of the preopercle, equals half of the depth at the same point. The dorsal outline tapers away from the commencement of the dorsal fin, but preserves a slight convexity. The eyes are rather large, horizontally oval in shape, their length as compared to that of the head, two to three. The superior crest of the orbit is furnished with a small sub-triangular flap, in front of which is a minute spine and a larger one behind. The two nostrils are oval and the anterior one is furnished with a fleshy tentacle. The hinder tip of the maxillary reaches a point even with the center of the eye. The teeth are disposed in close shaven villiform bands. Two flat gashed cirri are suspended from the lower margin of the preopercular bone, and two similar ones hang from the middle of the muzzle over the mouth. The preopercle is armed with three triangular spines, and a similar flat one terminates the opercle.

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A small spine occupies the space between the two nasal orifices, two or three at the anterior end of the nasal bone, two contiguous ones on the ^{hinder occipital} ~~temporal~~ region, one marks the origin of the lateral line, and one on the temple. A horizontal dentated ridge traverses the cheek.

The dorsal fin starts from a point immediately above the origin of the lateral line. Its spiny rays are very long and slender; the first, which is three-fourths the length of the head, is considerably shorter than the second, and the last or twelfth, which more properly belongs to the soft portion of the fin, is half the height of the first and less than one third as tall as the eleventh or preceding one. The sixth or seventh, which are the tallest equals in height the distance between the first and last spine. The soft dorsal, which is much deeper than long, is little more than half the height of the spinous, strongly arched above, and like all the other fins the interradial membrane is notched between the rays. The anal which is constructed similar to the soft dorsal is deeper than that fin. The caudal is nearly as long as the head. The ventrals are very long, equalling one-third of the total length of the fish, and when laid back the



third branch's ray which is the longest reaches nearly to the hinder termination of the anal base. The upper half of the pectorals are shaped very much like the spring dorsal, the rays being very long, reaching far beyond the base of the caudal, and the lower half which gradually become shorter terminate into filaments.

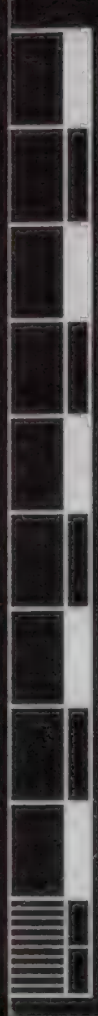
Color blackish brown. Flanks marked with numerous sub-vertical whitish narrow stripes which bifurcate upwards on the dorsal fin. Posteriorly the stripes are dotted with opaque white. Head blackish, and ornamented with close, sub-vertical reddish lines, which more or less bifurcate downwards. Reddish oblique sub-bands on the breast. Spring dorsal deep brownish black, with pale zones. Soft dorsal, caudal and anal vivid, their rays articulated with deep brown and amber-yellow, the latter maculated between the rays with round deep black spots, and its basal portion which is tinged blackish-brown is dotted with opaque white. Ventrals and pectorals deep blackish-brown, the former dotted with opaque white.

Length, 8 $\frac{1}{2}$ inches.

Habitat. Society Isls.

Remarks.—I have seen but a single specimen of this exceedingly rare fish.

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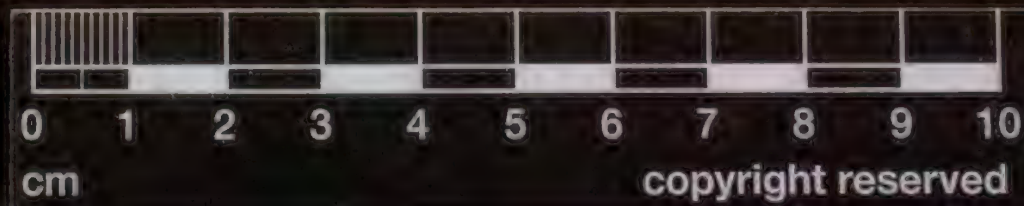
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Pterois volitans

genus Pterois, Linnaeus.

Form oblong, sub-elliptical, compressed. Scales small, extending over the head as far as the snout. Head sub-conical, variously spined and furnished with cutaneous appendages. Eyes large; their orbits elevated above the line of profile. Mouth with a moderately deep gape, which is oblique in its closure. Teeth exiguous, granular, or villiform, disposed in bands, and similar ones on the vomer. Branchiostegal rays seven. The two dorsals are more or less united; the spinous portion more than three the length of the soft, and composed of very long slender rays which have their interradial membrane divided nearly to the base of the fin. The caudal trunk is slightly oblique, and the fin is large, rounded and like the soft dorsal and anal has its principal rays bifid. Anal deeper than long and situated more in advance of the caudal than the soft dorsal. The ventrals and pectorals are very long the latter in some instances have their rays prolonged into long slender filaments.

These fishes are remarkable for their long dorsal spines and ^{long} pectoral rays.

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radiata, CuvierPterois antennata, Bloch

Pterois radiata, Cuvier et Val. Hist. Nat. des Poiss.
Vol. 4, p. 363.

Scorpaena antennata, Bloch, Nat. Hist. Vol. 1,
described from drawings and p. 21, pl. 185.
notes of ^{Solander} Banks and Parkinson & Melin, Syst. Nat.
who obtained specimen at the p. 1219.

Pterois antennata, Cuv. et Val. Hist. Nat.
Society, Vol. 4, p. 361.

" " " " Lessen, Zool. Voy. Voyag.
Vol. 2, p. 212.

D. 12-12; A. 3-7; V. 1-5; P. 16; C. 2, 1, 5, 5, 1, 2.

The greatest depth of the body, which
is just behind the base of the pectorals,
is not quite a third of the total length
of the fish. The greatest thickness at the
base of the pectorals equals half of the
depth just alluded to. The dorsal region
is considerably more arched than the
ventral. The head, in proportion to the
length of the fish falls short of a third.
The eye is sub-circular, its greatest
diameter entering about four times in
the length of the head. The hinder tip
of the maxillary extends posteriorly to
a vertical line intersecting the center of
the eye. Just in advance of the orbit
may be observed two approximating na-
sal openings, the hinder one oval the other

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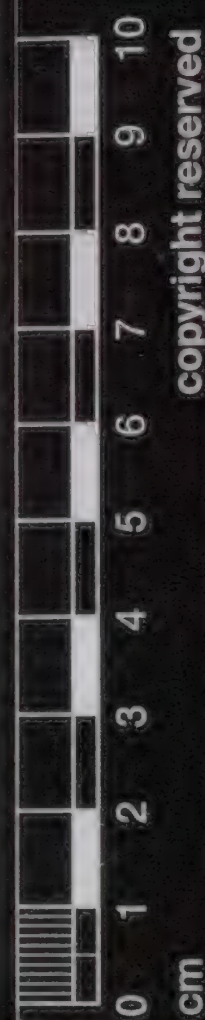
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circumference. Teeth minute, granular, scarcely prominent. A long slender filament on the superior crest of each orbit, which are about half the length of the head. Also a smaller one near each anterior nasal opening, and several others on the lower half of the head. The upper posterior limit of the orbit is spinous and a range of recurved spines extend from the eye to the origin of the lateral line. A pair on each side of the nape, the hinder ones the largest. A horizontal serrated ridge traverses the cheek and extends to the preopercular margin, which latter is armed with several spines, some of which are stouter than the others. The hinder portion of the opercle terminates in an acute angle, covered with a membranous flap.

The dorsal fin takes its origin midway between the eye and the hinder termination of the opercular flap. Its first spine is less than half as tall as the seventh which is the highest, equalling in altitude about one-third the total length of the fish. The tenth is about two-thirds as tall as the ninth, the eleventh which is not more than half the height of the first, bears the same proportion to the tenth as that does to the ninth. The twelfth or last is a little taller than the eleventh and is similar for the

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whole of its height by membrane to the soft dorsal and seems to belong to that part of the fin. The soft dorsal is rounded on its upper margin, hence the middle rays are tallest, which exceed the length of the base, but not more than half the height of the snout spine. The anal commences at a point opposite to the first articulated dorsal ray. Its lower margin is rounded and the fin is deeper than the corresponding one above. The large ventrals are ovate, and when laid back their tips reaches posteriorly as far as the first soft ray of the anal fin. The second articulated ray is the longest, being twice the length of the anterior spiny ray. The caudal constitutes two ninth of the entire length of the fish. The pectoral rays are undivided and prolonged far beyond their membranes into long slender filaments the upper ones reaching posterior to the hinder margin of the caudal. The lower ones rapidly diminish in length.

The body and posterior upper portion of the head is brown, paler beneath and behind. Breast, lower part of head pale yellow or flesh color and the snout generally tinged with reddish or light orange. The side of the body is ornamented with six, more or less vertical, narrow white

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is finny ribbons, which have black margins and are mostly forked above and beneath, the divisions extending on the fins. Two similar horizontal ribbons on the caudal trunk, and two on the head, both passing through the eye, downwards and backwards over the gill covers and the posterior one is forked just beneath and behind the orbit, the hinder branch passing over the snout. The ^{inner} surface of the orbital tentacles are crimson and the outer brown; the nasal appendages the former color. An oblique brown band enclosed by the ribbons passes through the eye.

The spinous dorsal rays are finny-red and the membrane reddish brown. Soft dorsal, anal and caudal have colorless membranes and pink rays articulated with brown. Ventrals deep brown, with carnation rays. Pectorals brown with fine crimson-red rays.

Length, 7 inches.

Habitat. Society Isls, Kingsmill Isls, Penneke Isls, Samon Isls, New Guinea, East Indies.

Remarks. At the first location this beautiful fish is called "Ba-ta-ra-i-hau" Wounds from their spines are much dreaded by the natives.

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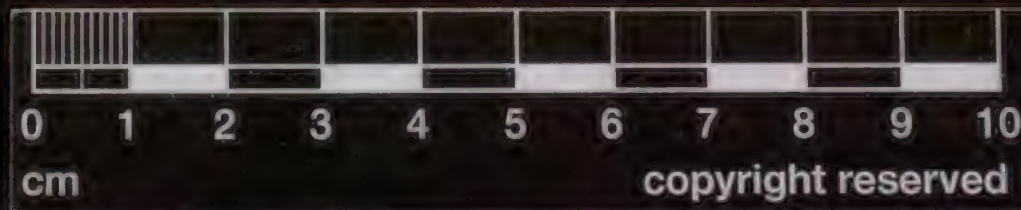
Pterois radiata Forst. Nat. Hist. Ind.

62



Pterois radiata

123



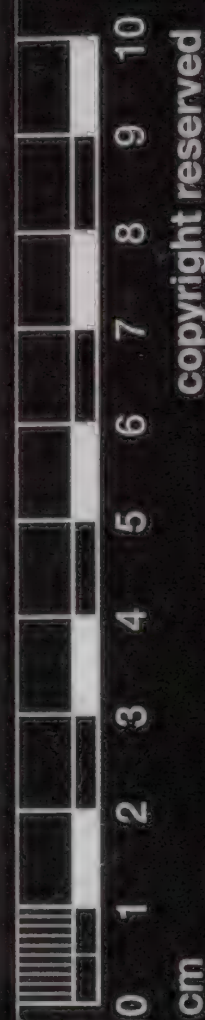
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genus Ikenianotes, Guvier.

Form oblong eute, strongly compressed; the body rapidly tapering away from the head, but preserving arch-like outlines. Skin naked, with minute rugose acute papillae. Head large, with a steep profile, variously spined and together with the other parts furnished with cutaneous flaps and filaments. Eyes elevated above the line of profile, with a deep concave space between them. Mouth very oblique. Teeth in crural and card-like bands. Branchiostegal rays seven. The dorsal fin is very high and united to the caudal. Its spiny portion, which is much higher, and longer than the soft part, commences nearly above the eye and is not serrated above. Caudal rounded. Anal shorter in its base than the soft part of the dorsal, not so deep and more distant from the caudal than that fin. The ventrals are beneath the pectorals, sub-orate. Pectorals very broad, rounded behind, and the rays are simple, but articulated.

These fishes may be known by their strongly compressed naked bodies and high dorsal fin.

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*Taenianotes triacanthus**Taenianotes filamentosus*, *garratt.*

D. 7; A. 12-10; S. 3-6; V. 1-5; P. 14; C. 1, 5, 5, 1.

The greatest depth of the body taken beneath the fifth spine of the dorsal is just half the total length, caudal excluded. The greatest thickness is nearly a third of the greatest depth. The head comprises one third of the fish. The eyes are circular, and their diameter extends four times in the length of the head. Two recurved spines may be seen on the superior crest of the orbit, one on the nasal region, two approximating ones on the occipital space, one at the origin of the lateral line, two on the upper margin of the preopercle and two radiating appressed ones on the opercle which have only their tips free. A longitudinal ridge along the cheek, terminates in two spines near the upper angle of the preopercle. The hinder tip of the maxillary reaches as far back as a vertical line touching the anterior limit of the orbit. Fimbriated cirri may be observed along the lower line of the head, a pair on the nasal bone and two between the eyes. Simple short filaments may be traced along the course of the lateral line, on the pectoral rays and spring rays of the dorsal fin.

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The dorsal fin starts from a point just above the posterior limb of the orbit. The second spine is the longest, being about one-fourth the total length of the fish; the first is about the same height as the tenth. The soft part of the fin is a little deeper than the last spring ray, and comprises less than a third of the whole length of the fin; it is deeper than long, and is rounded off behind. The height and length of the anal are about equal. The longest pectoral rays reach as far back as the third soft ray in the anal fin. The rays of the operals are bispin.

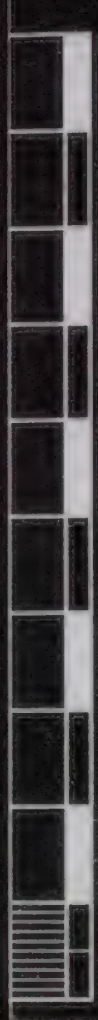
Color light greenish-yellow, with here and there pale mahogany-red shades, and every where profusely punctured with white. Sides light greenish yellow, with an inner red ring and radiating reddish lines. Fins more or less suffused with mahogany-red and their extreme portions irregularly spotted with deep black.

Length, $3\frac{1}{2}$ inches.

Habitat. Society Is.

Remarks. I caught a single specimen of this fine species with my hand in a rocky pool.

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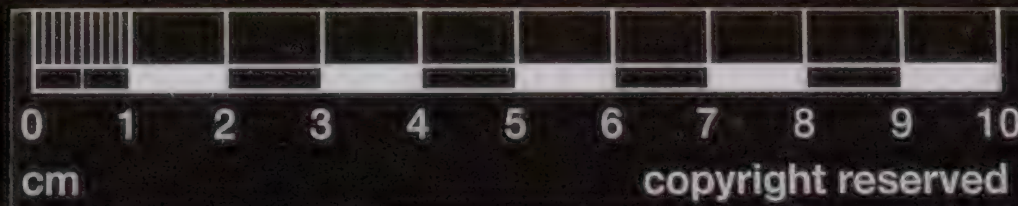




Taenianotus triacanthus (C. V. S. P.)

Taenianotus triacanthus 59

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N NATURAL
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*Taninotus garretti**Taninotus sandwichensis*, garrett.

D. 7; A. 11-12; S. 3-6; P. 1-5; V. 14; C. 4, 5, 1.

Color light red with deeper color clouds. Breast and belly dusky-green and closely dotted with white. Dorsal fin mottled with dusky, white and brownish on a light reddish ground. The anal fin is speckled with white and margined below with sap-green. Ventrals irregularly spotted with white. Pectorals of a deeper red than the body and margined posteriorly with sap-green. The caudal is marked across the middle by a vertical dusky bar and freckled with white.

Length, 4 inches.Habitat.—Sandwich Isls.

Remarks.—This very rare fish, of which I have seen but a solitary specimen, was sent to my correspondent before I could draw up a description.

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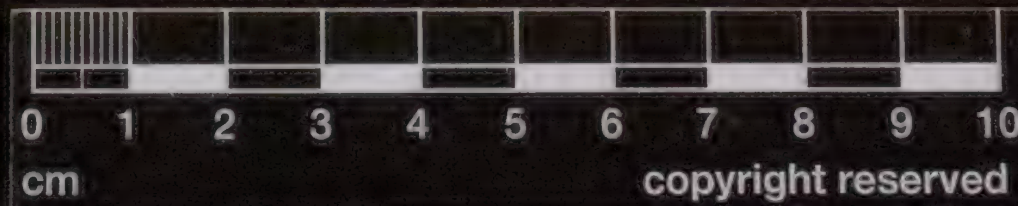
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Taenianotus garretti

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Synanceia brachion, Lacép.

Scorpaena brachion, Lacépède, Hist. des Poiss.,
Vol. 3, p. 272, pl. 14, fig. 1.

Scorpaena brachiata, Shaw, Nat. 4, 2^d part, p. 74.

Synanceia veronacea, Bloch, Ichth., p. 195,
pl. 45.

Synanceia sanguinolenta, Ehrenb. Piss.,
pl. 1.

Synanceia brachio, Cuv. et Val., Hist. Nat.
des Poiss., Vol. 4, p. 242.

B. 7; D. 13-7; A. 3-6; V. 1-5; P. 19; L. 3, 1, 8, 1, 1, 3.

This hideous fish is covered with a
loose, tuberculous fungus-like skin, and the
cutaneous flap ~~on the head~~ and fins
gives it a more frightful aspect. The head,
which is broader than deep, comprises
about a third of the total length of the
fish. The anterior portion of the body
is rounded, becoming more and more
compressed posteriorly, and in profile
tapers away toward the tail. The upper
part of the head exhibits prominent hollows
and rugosities. The eyes are small, situated
at a point midway between the top of
the upper jaw and the dorsal fin. The
orbits are pushed up as it were above
the rough surface of the head, so that
there is a deep excavation in the inter-
orbital space. The ample mouth is particu-
larly and when closed, the rounded chin
forms the anterior extremity of the fish.

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The teeth are disposed in villiform bands on either jaw, and the tongue is thick and rounded in front.

The dorsal fin commences at a point nearer to the eyes than the hinder end of the opercular flap, and terminates close to the caudal. Its spiny portion, which occupies about three-fourth of the fin, gradually increases in height to the soft portion and the interradial membrane which fills the space between the tip of the rays. The soft dorsal is rounded and its last ray is bound down by a posterior slip of membrane. The anal fin is similar but not so high as the soft part of the fin above. The large ventrals have their rays graduated so that the last one is longer than the anterior and is bound for its whole length to the body by a membrane. The pectorals arise from a long oblique base and are obliquely arched in their hinder margin. The caudal is small.

Color very variably, sometimes more or less brassy and variably mottled with different shades of red, orange, and gray. Again, some are of a nearly uniform chocolate brown, or with paler shading, or purplish brown and mottled as above. Ventrals cuprous yellow. All have a vertical bar in the caudal fin.

Length, 12 inches

Habitat, Society Is.

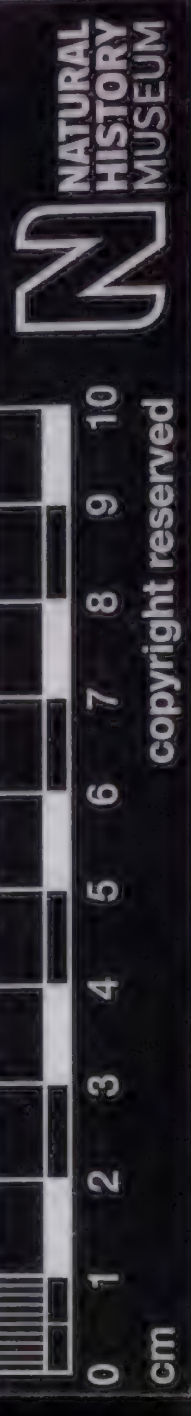
Veri¹⁵ No. 1000

This species ranges all through the tropical portions of the Pacific and Indian Oceans except the Sandwich Islands.

Genus Tynanncia, Bloch. John.

Body oblong, compressed, dark brown
except on a lower and some brown
skin. The lateral line has a slight bend
in its course to the tail. Head large, mucous
processes rough, tuberculous, and fingers on the
ventral more frightful by cutaneous flaps.
Mouth ~~vertical~~ ^{slightly} vertical, with slender
or furnished with fine card-like teeth. Branchial
tegal rays seven. Dorsal long, the ~~spiny~~
portion much the longer. Anal small.
Ventrals in series just posterior to the
pectorals, which latter are very large, broad
and oblique. Caudal rounded.

These fishes may be known by
their hideous aspect, large, rough
compressed heads, and generally large
fingers skin. They are much dreaded
by fishermen, as wounds inflicted by their
sharp dorsal ^{spines} are considered extremely
dangerous, and have, as I have been
told, in some instances proved fatal.
At the Kiti islands, I saw a native who
had been wounded by one of these fish,
and from all appearance the wound would
cause the death of the man, as gangrene
had set in; consequently nothing would save
him except amputating his foot. The
natives of the Society islands are
of the opinion that some of the islanders are familiar
with an herb, which if applied to the
top of the head will immediately, ~~alleviate~~
the dreadful agony caused by a wound.



from their spines. Singular as this applica-
tion of this shark may seem, by being
applied to the occipital region where
all probably the wounded part is the
front, yet there must be some truth in it
for several natives, whom I have interviewed
having been wounded by these fishes
were relieved in the manner above stated,
thus confirmed the truth of the wonderful
medicinal properties of the plant. They
stating that when its application it
seemed to have the same effect on the
system as a slight shock from a galvanic
battery, and instantly allayed the pain.

It is wonderful to me that so few
natives are injured by these fishes for
they generally lay concealed in the
sand on sand flats, reefs, sometimes
lying under stones, and the natives
always go on their fishing expeditions
with their feet unprotected. Several times
I saw fishing in the sand in very shallow
water, and only their eyes, mouth and
the upper edge of their dorsal fin visible.
They are very sluggish, and none at all
come from their sandy beds until I
surrounded them with my feet. How often
they lie concealed for any small
marine animal that swims over the
surface of its coarctation, much the

They are very tenacious of life, and
survived from their element, for one
that I had in my ^{cup} lived nearly 20
hours.

They are much plagued by the natives
as an article of food.



cm

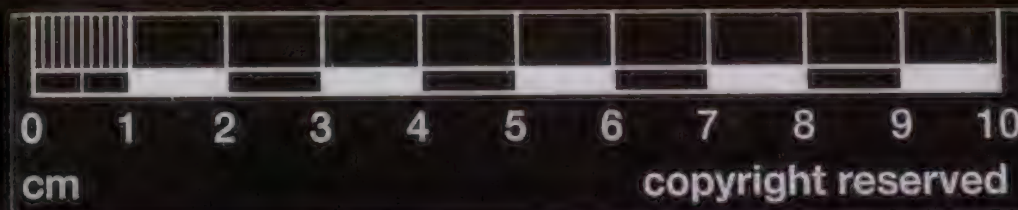
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Synanceia verrucosa



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Microgobius maculatus

Genus ? No 113

Of this singular fish we obtained a number of exemplars, all captured in clumps of branched coral.

It is of an oval form, rather strongly compressed, the greatest depth at the origin of the first dorsal fin, which equals half of the total length, caudal excluded. The upper line of profile is more arched than the lower one, both commencing at the muzzle and continued to the caudal trunk. The integument is scabrous, but garnished with numerous minute simple short filaments. The lateral line is distinctly defined, and slightly curved. The head is large, obtuse, deeper than long, comprising nearly a third of the fish. Its upper profile rises with a bold curve up to the dorsal fin, and is scabrous with closely-set minute compressed, truncate granules and exceeding fine papillae. The eyes are circular, even or nearly so as the upper line of profile, and their diameter exceeds three and a half times in the length of the head. The interorbital space is narrow, being less than one diameter of the orbit. The anterior nostrils are pierced through a tube, approximating and placed close to the upper mouth rather small, oblique, transversely obtuse in front. Teeth exceedingly minute, and disposed in villiform bands. The sub-orbital bone is armed with an elongate large flat spine which projects obliquely downwards and backward, in front of which many

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be seen a small tubercular tooth. The preopercle is armed with five or six stout spines the two lower ones the larger, slightly curved. The opercle small, with a single stout slightly curved spine directed backward. The opercle terminates in two small flat triangular spines. The caudal trunk is oblique to the axis of the body.

The anterior dorsal fin is small, arched, commencing nearly above the origin of the lateral line, and the third or fourth spine is the tallest. The second takes its origin close to the first, is longer in its base, slightly deeper, arched in outline, the middle rays tallest, all prolonged beyond the interradial membrane and the rays are branched.

The anal fin, which is opposite to the second dorsal, is of the same length in its base, but not so deep as the latter fin and is of the same shape and structure. It is preceded by two minute free spines. The ventrals are rudimentary, consisting of a minute spine and three soft rays inserted beneath the base of the pectorals.

The pectorals are short, with stout bases, fleshy and projecting nearly at a right angle with the body. The six upper rays are simple the eight lower ones stout and articulated.

The caudal is small rounded.

D. 3; A. 5-12; V. 2-11; P. 1-3; B. 6-8; C. 3, 4, 7, 2.

Color grayish, dotted with brown. Irides varied with silver and brown. The spines dorsal and pectorals dotted like the body.

Length 1 1/2 inches. Society Is.

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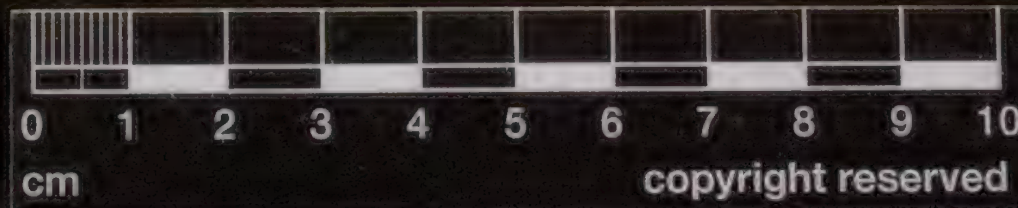
113

129

Micropus maculatus



Micropus maculatus



N NATURAL
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*Microgobius aripinnatus*Genus? No 114

D. 7-13; A. 2-12; P. 1-8 P. 9-7; C. ?

This species which is closely allied and congeneric with No 113, was also obtained in clumps of coral. The single example before me is light brown passing into grayish white beneath. Ventrals 21 long. The general shape and structure of the body is the same as No 113.

The two dorsals are united, the first more developed than in No 113, but all the other fins nearly similar to that species.

Length 1 inch.

Accl. Society, I. L.

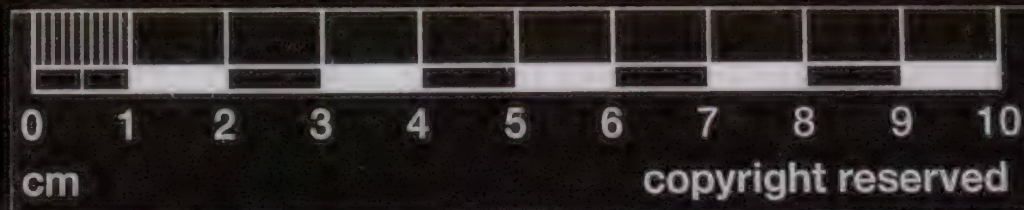
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Micropus unipinna

114
130



Micropus unipinna



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*Plesiopterus corallicola*Plesiopterus No 324

H. 5; D. 11-12; A. 3-4; V. 1-2; P. 20; C. 3, 4, 4, 2.

The upper and lower profiles are gently arched, and the greatest depth of the body is about equal to the length of the head, which latter comprises a fourth of the fish. A slight depression may be observed just above the preopercle margin. Eyes large, sub-circular, inserted so that their orbits are even or arising a little above the upper line of profile, and their greatest diameter equals about one fourth the length of the head. They are separated by an interocular space equal to half the diameter of their own orbits. The hinder tip of the maxillary extends posteriorly as far as the hinder limit of the orbit. The preopercle is rounded and has a membranous border. We enumerate 10 to 11 horizontal rows of scales on the side of the body, four concentric rows on the cheek, a single large one on the interopercle, and those that cover the opercle are larger than those on the body. The lateral line curves upward and runs close to the back as far as the end of the dorsal fin, where it suddenly terminates, but commences again in the median line above the origin of the anal fin and runs straight to the tail.

The dorsal fin commences at a point immediately over the hinder corner of the opercle, and gradually increases in height as far as the fifth branched ray, whence they rapidly decrease in length so as to give that

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part of the fin an acutely angular outline. The whole fin extend over a base equal to half the length of the fish, caudal excluded, and the soft portion when bent down extends a little beyond the base of the caudal.

The anal fin takes its origin beneath the ninth dorsal spine and is preceded by three small graduated spiny rays. Its soft portion is shaped and about the same size as the soft dorsal but terminates a trifle in advance of that fin. The very long ventrals are narrow and when laid back their tips reach beyond the commencement of the anal fin. Their small anterior spine is less than a third as long as the second articulated ray, which together with the first is stout, and not divided into branches and have their interradial membrane deeply notched. The caudal occupies one-fifth the length of the fish and the pectorals about one sixth.

The ground color of this beautiful species is brownish, the throat and belly violaceous and each scale on the body is ornamented by an oblong vertical blue spot. The upper hinder portion of the head spotted with soft green and large bluish green spots along the lower line. Several large blue spots, margined with reddish brown on the opercular pieces, and the branchiostegal membranes lined with rich orange and blue border.

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golden yellow, clouded with red. The
spiny dorsal is yellow on its basal half
and blue above; its soft portion together
with the anal and caudal purple black,
the two former with dashes of such violaceous
blue between and parallel to the rays, and
the latter fin is dotted with emerald-
green on its basal half and violet at-
tending. The scales bases of both dorsal
and anal dotted with blue, and the soft
portion of both fins tinged coppery red
near base. The pectorals are nearly colorless
except a marginal orange tinge, and the
rays light olivaceous. The ventrals are
purple black, dotted like the caudal,
though some have vermicular lines
instead of dots.

Length 6 inches.

Hab. — Kingsmill Isl.

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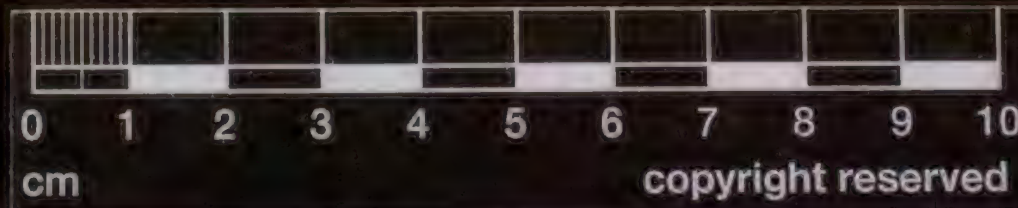


131



Plesiops corallidoma

324



N NATURAL
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Scaevola striolata

Siganus No 96

132

D. 13-10; A. 7-9; V. 1-2; P. 12; C. 2, 4, 5, 2, 1, 1.

This species is more depressed on the upper and lower profiles than No 97, so that the greatest depth as compared to the total length is as two to five, and the head is a little less than a fifth of the whole fish. The large eye is a little more than the length of the head in diameter.

The fins are similar to No 97, but deeper, the emargination between the two dorsals not nearly so deep, the soft dorsal more arched and the caudal is nearly full.

Color olive-brown passing into bluish gray on the lower third, and the upper two-thirds of the body decorated with closely-set bluish-gray perimacular lineations. The head with similar broad irregular small oblong spots, and the lower third of the body with small irregular spots and lines of an olive brown color. Irides mixed silver, yellow and brown. Pectorals pale amber. Rays of the soft dorsal anal and caudal pale amber the rays of the two former spotted with dusky. The spiny portion of the dorsal, anal and ventral pale with dusky shading.

Length 10 inches.

Hab. Society Isls.

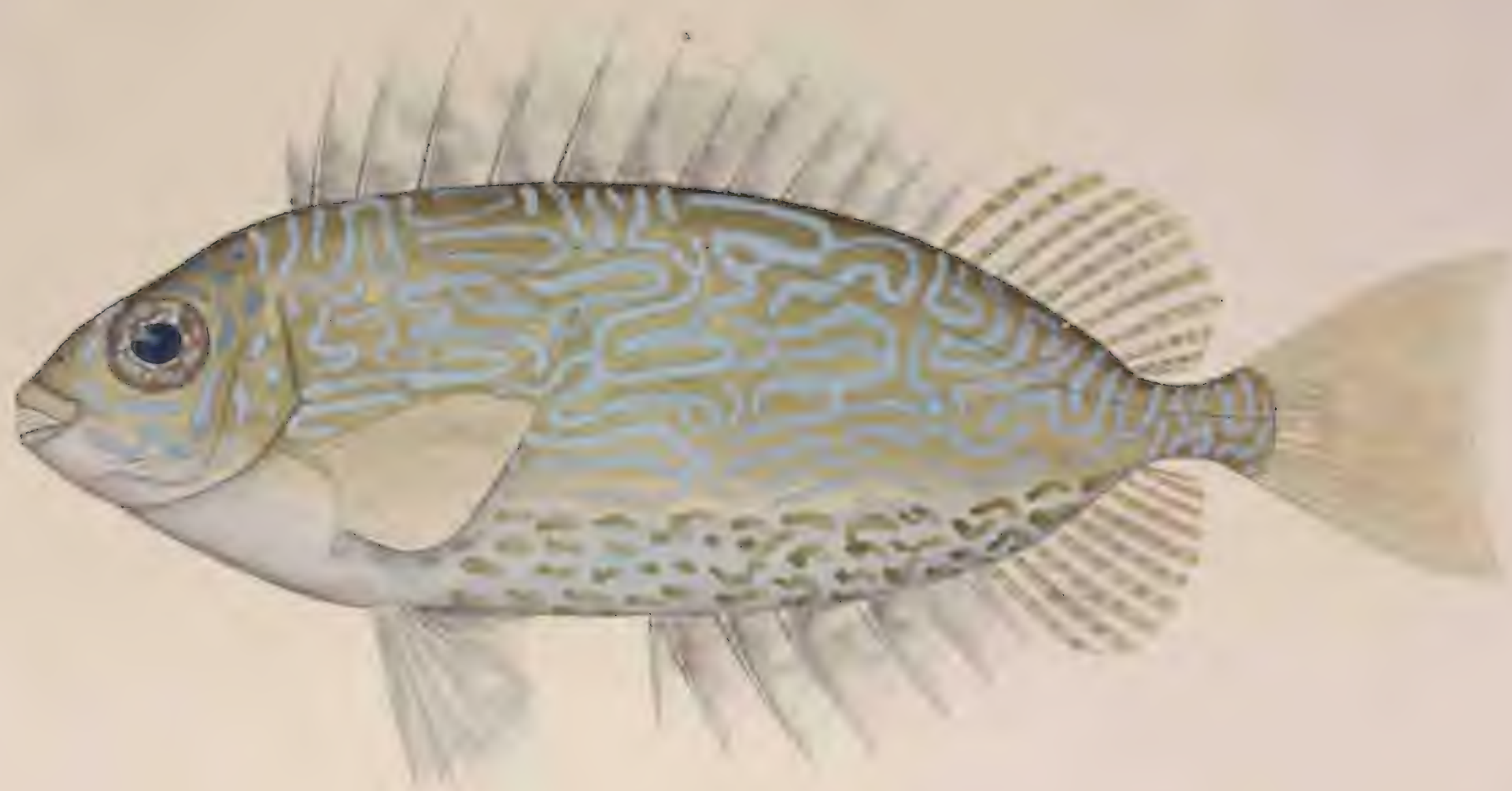
Native name. Marara tiamu

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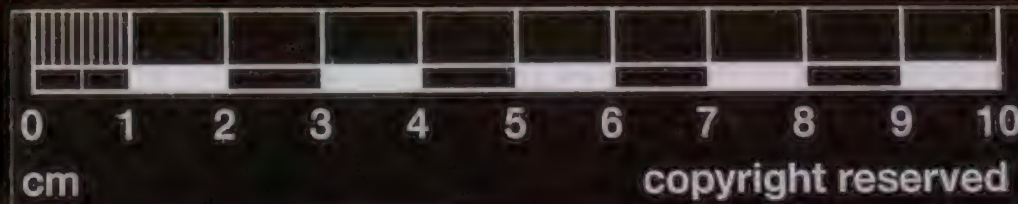


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Penthis striolata



*Tetraodon rostratus**Siganus* No 547

B. 5; D. 13-10; A. 7-9; K. 1-3-1; P. 15; C. 41, 37, 11.

This species is shaped very much like No 97, the greatest depth as compared to the total length is as three to ten. The head which is depressed above compares one fifth of the total length, caudal fork excluded in the measurement. The sub-circular eyes on two front tentacles in the length of the side of head.

The vertical fins differ but little from No 97, but the soft dorsal is not so high. The pectorals are also similar to the latter species.

Color of the living fish violet with purple brown shades, and the whole head and body is closely mottled with small amber yellow spots, which are of irregular shape, round, oblong, curved and sometimes vermiculated. Sides mixed silver and brown. The dorsals and anal smoky blue, their spinous portions clouded with brown and their soft rays with or without brown spots. Pectorals very light straw yellow. Ventrals light yellow, clouded with brown. Caudal dusky violet or olivaceous.

Length 9 inches

Hab. - Society Isls.

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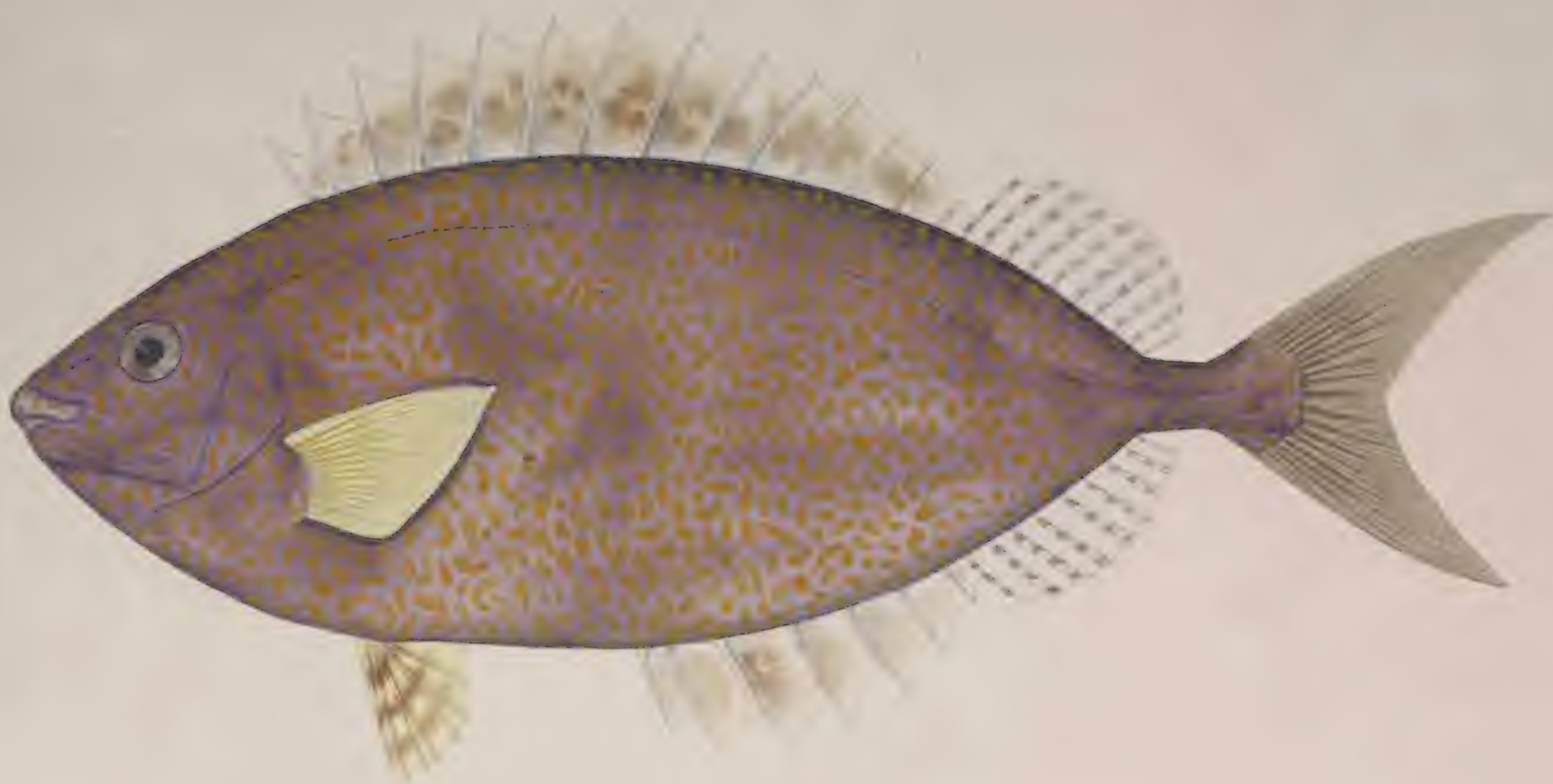
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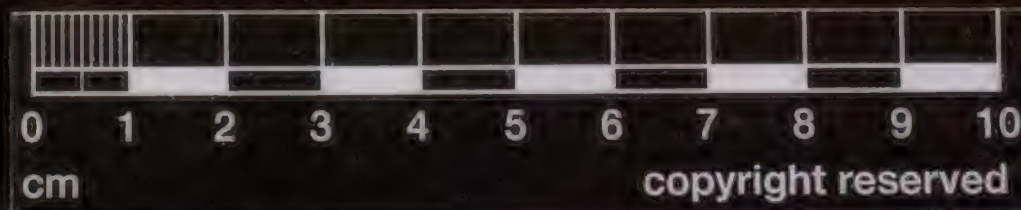
Penthis rostrata

347

133



Penthis rostrata



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Parachanna

Siganus

no 443

134

~~tristis, G. Smith~~

D. 13-10; A. 7-9; K. 1-3-1; P. 17; 6.9, 8.9, 11.3

The general outline of this species is oblong ovate, the dorsal region more symmetrically arched than the ventral line, owing to a depression along the abdominal region. The greatest depth of the body, equals just half of the distance from the end of the snout to the hinder termination of the dorsal fin. The head, which comprises nearly a fifth of the total length, is somewhat gibbous, lower than of the eyes. The latter organs are large, sub-oval in shape, and their greatest diameter as compared to the length of the head is as two to seven.

The dorsal fin arises at a point immediately above the hinder termination of the opercle and its spiny portion comprises considerably more than two thirds of the fin. Its first spine is only half as tall as the second, and the fifth is the highest and the others graduated so as to exhibit a gently arched outline, and a slight depression between the two portions of the fin. The soft portion of the fin, is considerably deeper than its spiny part, which depth nearly equals the length of its own base, and the third articulation is the tallest, posteriorly of which they rapidly diminish so as to give a convexly rounded vertical margin. The anal fin takes its

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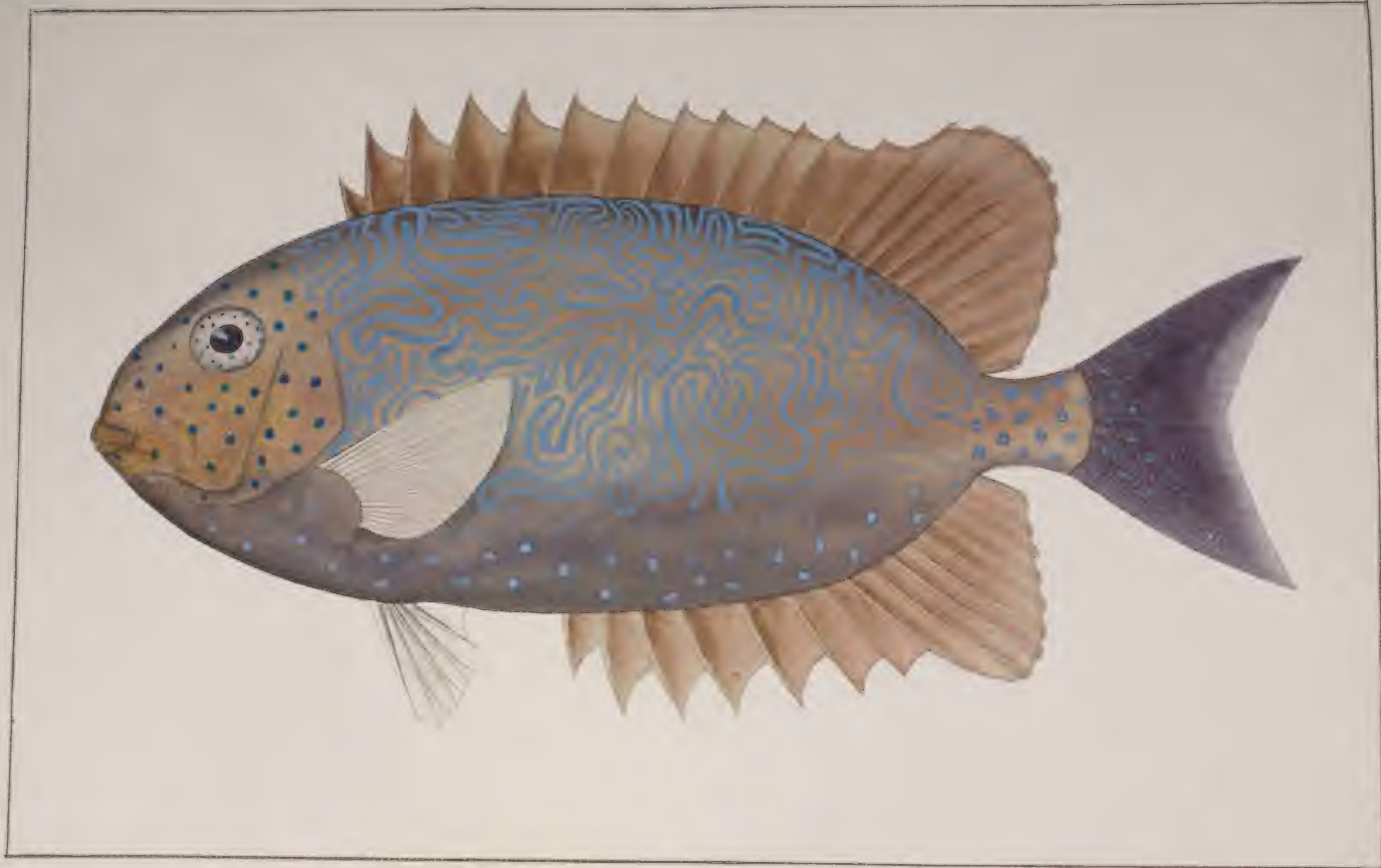
origin at a point opposite to the dorsal spine, and extends over a base one-third of the total length of the fish. It is shaped very much like the dorsal, with which it terminates. The pectorals are half as long as the head and the pectorals are one-third longer than the former. The caudal is emarginate for a little more than a third of its length, so that it exhibits wide triangular pointed lobes.

The ground color of the dead fish is of a chocolate brown which becomes purple or violaceous brown beneath, and a copper yellow tinge marks the snout and cheeks. The upper two-thirds of the scales is ornamented with closely set vermicular bluish ash lines, which has the appearance of arabesque painting. Along the lower parts and basal half of the caudal may be observed ^{small} obsolete spots of the same color. A few blue dots marks the side of the head and may be seen on the light brown iris. The dorsal ~~and~~ anal are snuff brown. The latter the pectorals and the caudal is violaceous or purple brown. Ventrals white with a brown shade. Pectorals colorless.

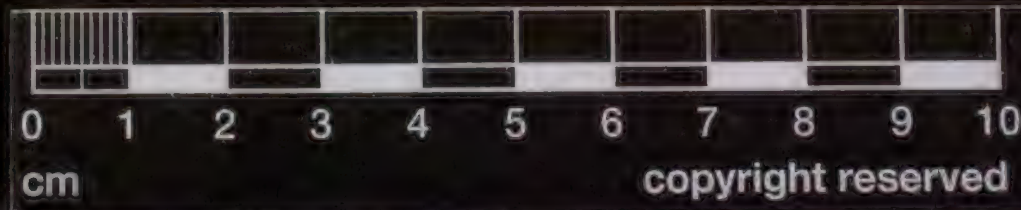
Length Pl. $3\frac{1}{4}$ Nat Size.

Habitat Viti Island.

Native name Vaga



134

Thalassoma sp.

N NATURAL
HISTORY
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Siganus no 97

Pomacentridae

B. 9; D. 12-10; A. 7-8; P. 14; L. 13; C. 4, 1, 2, 4, 3.

Form elongate oval, strongly compressed, both upper and lower outlines very slightly curved from the snout to the slender caudal fin. The greatest depth as compared to the entire length is as two to seven. The head is abbreviated, conical, obtuse in front and comprises about one-sixth of the fish. The eyes are one third as long as head.

The dorsal fin arises immediately above the base of the pectorals, its spiny portion extends over a base equal to one half the length of the fish, caudal excluded, and the sixth or seventh spine is the tallest. The base of the soft dorsal as compared to the spines is as two to five; its third or fourth ray is the tallest and equals in altitude half the length of its own base.

The anal fin passes over a base equal to one third the total length of the fish. The pectorals when laid back do not reach the anal by half their own height. The length of the pectorals equals the base of the soft dorsal fin. The caudal is large, deeply forked, the lobes elongate triangular.

Color of the living fish bluish violet, paler beneath, and profusely maculated with small roundish fawn brown spots which are more irregularly shaped on the head, oblong on the lower part of the body. Beneath the head and throat blotched with purplish-brown. Irides brown. The spiny portion of

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The dorsal and anal fins are sub-falcate with dusky clouds and their soft portions have their rays spotted with olive. Pectoral rays more or less tinged with amber yellow. Ventrals whitish olive, sometimes with the oblique dashes of olive brown. The caudal is the same color as the body.

Length 10 inches

Hab. Society Isls. Kingman Reef

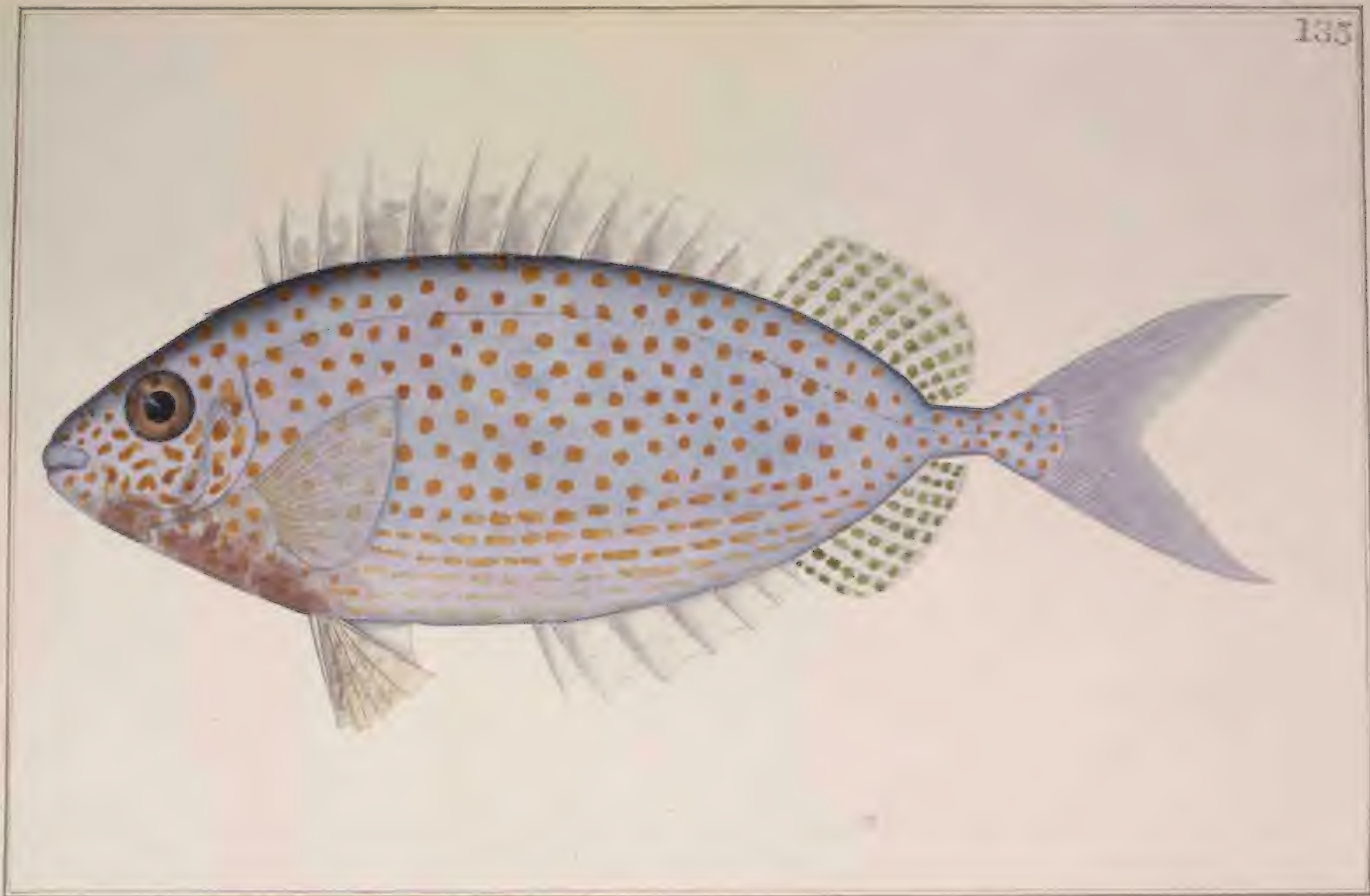
The native name at the latter location 'Teimunai'

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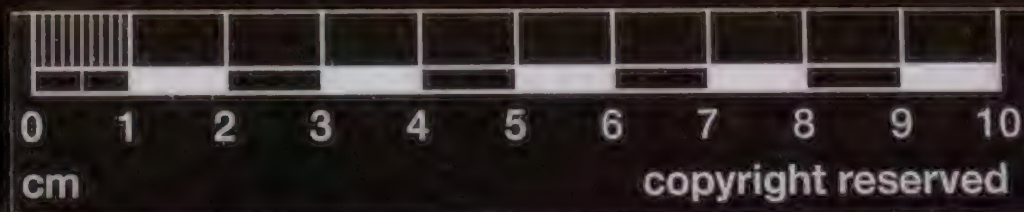
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Thalassoma sp.

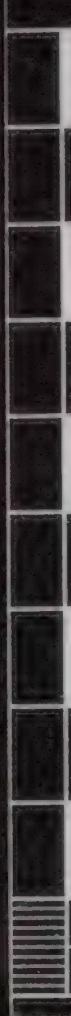


*Myripristis murdjan**Myripristis*

D. 10-14; A. 4-13; V. 1-7; P. 15; C. 3, 13, 2, 1, 4.

The head comprises a little less than a fourth of the total length. The eyes enter two and a half times in the length of the head. The tip of the maxillary extends posteriorly to a vertical line touching the hinder border of the cornea. There may be counted thirty three or thirty four scales in the course of the lateral line. The third spine of the dorsal fin, which is twice the height of the first, is the tallest in the fin. The second dorsal and anal have concave margins, the former passing over a base half the length of the spiny dorsal.

Color carmine red above; sides silvery with a blush of carmine, scales more intensely colored along their margins. Pectoral axillae and opercular flap blackish. Sides silvery, clouded with scarlet and brown. All the fins more or less scarlet red, the vertical ones intensely colored. The central portion of the spiny dorsal more or less clouded with bluish white. The anterior margin

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of the second dorsal, anal, pectorals, and
the upper and lower ones of the caudal,
white.

Length, 9 to 11 inches.

Habitats.—Sandwich Is., Society
Is., Hervey Is., Palmyra Is., Kingman
Is.

Remarks.—A very abundant
species, characterized by the white
margin'd fins.

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Myripristis murdjan.

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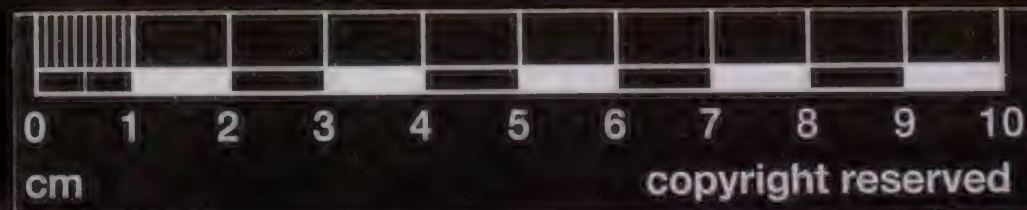
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Myripristis murdjan



Myripristis murdjan
var. aruensis

Myripristis

39

137

(no plate)

D. 7; L. 10-14; A. 4-13; P. 1-7; V. 16; B. 5; 1, 9, 7, 1, 4.

The head comprises one-third of the total length, caudal excluded. Eyes circular, their diameter to length of head, as two to five. The hinder tip of the maxillary does not quite reach so far back as the posterior limb of the orbit. The soft dorsal and anal are concave along their extreme margins, and rounded off on their deepest portion.

Color: above the lateral line the scales are light greenish, silvery beneath and tinged along the belly with copper-red. On the upper third of the body they are margined with black and an intramarginal shade of brilliant blue. A deep blackish brown spot marks the pectoral axillae and opercular flap. The top of the head is brilliant blue, and the raised sculptured lines black, cheeks tinged with copper red on a silver ground. Irides silvery, clouded with fulvous. The spiny dorsal is reddish brown, and its median portion clouded with white. The other vertical fins have most of their membranes colorless, rays tinged with pink,

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and the extreme outer portion of each is deep black shaded off inwardly into the red. The pectorals and ventrals have colorless membranes and pinky rays.

Length, 10 inches.

Habitat.—Society Isls. Kingman
Isls.

Remarks.—This seems to be a very rare species at either of the two above mentioned locations. At the former group of islands it is called "M-na-to". The black margined fins are its most prominent characters.

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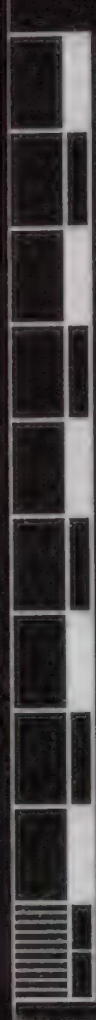


97

Genus *Ostecephalus*, Garrett.

Form oblong oval, compressed. Scales of moderate size, brilliant, strongly ciliated, especially posteriorly; a single row on the anterior margin of the opercle, and three or four vertical rows on the preopercle. A row of large rough scale plates posterior and contiguous to the infra-orbital chain. Head sub-conical; jaws even; mouth oblique; teeth in villiform bands on either jaw; granular ones on the vomer, pharyngeals and arches of the branchiae. Eyes large. Bones on the top of the head furrowed. Ethmoid, infra-orbital chain, lower part of the head, and opercular pieces rough with aculeated granules. Ethmoid, orbital chain and opercular pieces denticulated; the former projecting over the upper jaw. Preopercle with a double border. Opercle spined. Branchiostegal rays eight. Fins small. A profound depression between the spiny and soft portion of the dorsal, the former the longer, but not so deep as the latter. Soft dorsal arched above. Anal with four anterior spiny rays, and shaped like the fin above. Ventrals rounded off

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at their tips and inserted posterior to the pectorals. Pectorals ovate. The caudal is bilobed.

Holotrachys limai.

Ostecephalus coccineus, Garrett.

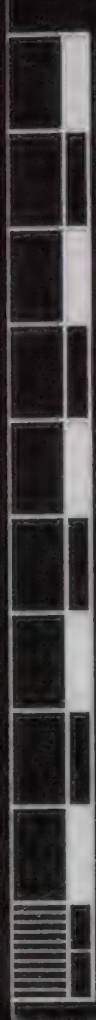
B. 8; D. 12-15; A. 4-11; V. 1-9; P. 14; C. 5, 1, 4, 4, 4.

The dorsal region is more arched than the ventral, the latter being depressed along the abdominal region. The body becomes much compressed posteriorly. The greatest depth of the body enters about three times in the total length of the fish. The head as compared to the total length is as one to three. The large dilated maxillary reaches back to a point half the length of the eye posterior to that organ. Eye large, horizontally oval, their length being one-fourth that of the head, and approximating the snout.

The spiny dorsal is arched, being the tallest at the fourth ray. The lobes of the caudal are rounded.

Color: Scales scarlet silvery, or pale scarlet, with more intense scarlet margins. Head scarlet. Sides rich

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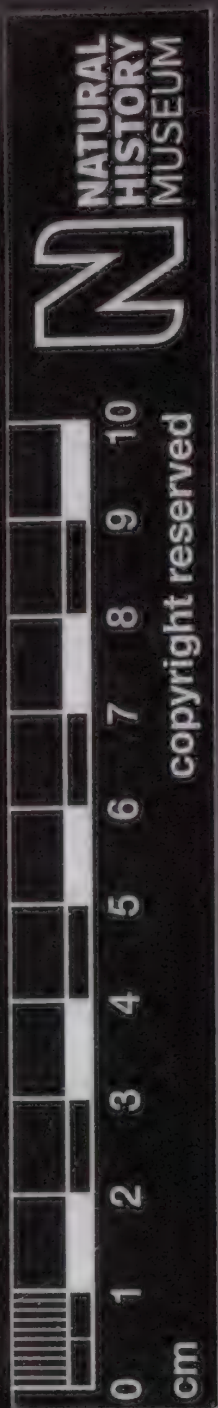


brilliant scarlet. Spiny dorsal clouded
with scarlet. All the other fins have
colorless membranes and scarlet rays.

Length, 6 inches.

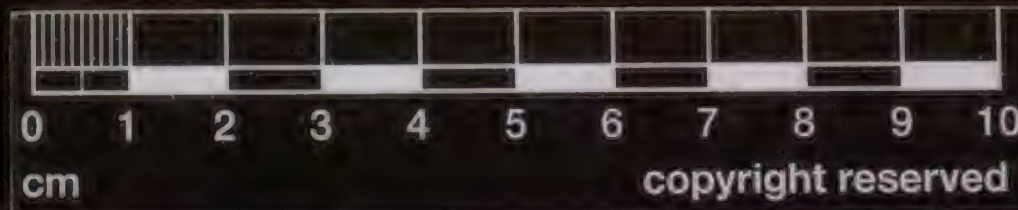
Habitat.—Sandwich Isls,
Kingman Isls, Society Isls.

Remarks.—A very rare species
at either of the above mentioned lo-
cations. The Society islanders call
it "U-u".





Myripristis lima



Hol. spiniferum?
or *caudimaculatum?*

Holocentrum No 377

139

D. 11-14; A. 4-5; P. 1-7; V. 13; C. 4, 1, 4, 9, 14.

Greatest depth less than one-third the total length. Head entire $3\frac{1}{2}$ in total length. Maxillary extend posterior as far as the pupil. Eye, sub-circular, entering three times in the length of the head. Spines in head see drawing. 11 horizontal rows of scales in greatest depth of body.

Dorsal fin arises a little in advance of the base of the pectorals, the fourth spine the tallest. For structure of the other fins see the drawing.

Color fine ruby-red, paler beneath, each scale reflecting copper blue in certain lights, and the lower parts reflecting golden brides. The same hue as the body, with dusky shades. Spines dorsal blood red with a series of diffuse white spots along the middle and tipped with white above. All the other fins more or less ruby red.

Length 8 inches.

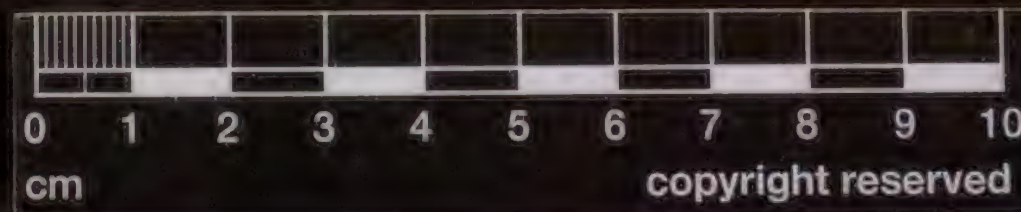
Hub. Society Isl.

Notop name Gere:





Holocentrum sp.



*Holocentrum microstomum**Holocentrum diadema*, Lacép.*Holocentrum diadema*, Lacép., Poiss. Vol. 3,
pl. 32." " " " " " " " " " " "
Proc. et Vol. Hist. Nat.
des Poiss. Vol. 3, p. 213.*Parca pulchella*, Bennett, Zool. Jour. Vol. 3,
p. 377, pl. 19, fig. 3.*Holocentrum diadema*, Lesson, Zool. Voy. Co
-quille, p. 220, pl. 28, fig. 2.

B. 8; D. 11-13; A. 4-5; V. 1-2; P. 13; C. 5, 1, 4, 2, 1, 5.

This splendid species is rather slender, the greatest depth being a little less than a fourth of the total length, and the thick equals half the depth. The head comprises one-third of the fish, caudal excluded. The eyes are slightly oval in shape, their greatest diameter as compared to the length of the head is as two to five. The hinder tip of the maxillary reaches a vertical touching the anterior edge of the cornea.

The spring dorsal is more regularly arched than usual, the fourth ray being the tallest in the fin.

Color silvery white. The sides of the body are longitudinally striped

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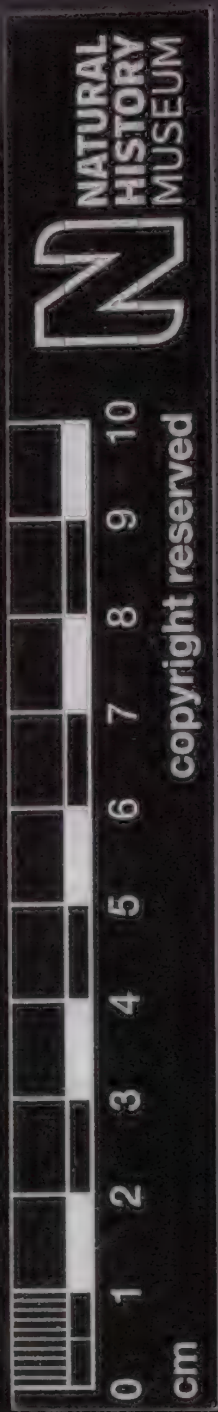


with carmine red. The stripes, which are wider than their interspaces, corresponds to the number of rows of scales. Cheeks and upper part of head carmine-red. Spiny dorsal pinky red centrally, dark red above and beneath, and the anterior upper third is most generally deep black. Ventrals colorless, except a slight pinky red tinge on its anterior edge. All the other fins nearly colorless, except their rays which are pinky red.

Length, 5 to 6 inches.

Habitat.—Sandwich Isls, Society Isls, Kingman Isls, Hervey Isls, Palmyra Isls.

Remarks.—This splendid little species is quite abundant at the above locations. Bennett's figure in the Zoological Journal is incorrect in outline, and conveys no idea of the colors of the fish.

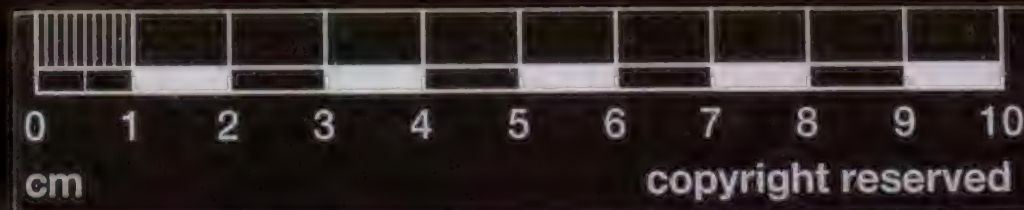


Holocentrum microstoma

37

Holocentrum microstoma Forst. Cat. Pis. 1775

140



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*Holocentrum erythraeum**Holocentrum tiele, Guvier.**Holocentrum tiele*, Guv. et Val., Hist. Nat. des Poiss., Vol. 3, p. 202.

" " Lesson, Voy. La Coquille, p. 221, pl. 25, fig. 1.

B. 8; D. 11-13; A. 4-9; V. 1-7; P. 15; C. 4, 1, 2, 5, 1, 3.

The head constitutes about two-seventh of the entire length, and the greatest depth of the body nearly equals the length of the head. The eyes are ovalish in shape, even with the upper line of profile and their greatest diameter equal to two-seventh of the length of the head. The hinder tip of the maxillary reaches posteriorly as far as the center of the eye. The anterior termination of the nasal bone is bilobed. The front sub-orbital is more or less spinous along its lower edge, the anterior spine being well developed, and when the mouth is closed laps over the two lips. The second sub-orbital is also furnished with a long flat spine which projects downward. Five concentric rows of scales may be enumerated on each cheek, and eleven longitudinal rows on the greatest depth of the body.

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The dorsal fin commences a little in advance of the opercular corner and the fourth ray is the tallest in the spring portion of the fin.

Color light scarlet red, gradually becoming paler beneath, and silvery along the belly. The scales have each a central pale burnished violaceous blue spot, which in certain lights reflects burnished golden. Sides scarlet red with darker clouds. The dorsal fin is blood red, paler towards the base, tipped above with whitish, and the median portion is marked with a series of large diffuse colorless spots. Soft dorsal, ventral, and pectorals pale pinky-red and scarlet red rays. Ventrals deep scarlet red becoming much paler posteriorly. Anal fin pale pinky red and anteriorly suffused with blood-red.

Length, 8 to 10 inches

Habitat—Sandwich Isls, Society Isls, Kingman Isls, Hervey Isls, Palmyra Isls.

Remarks.—A common species at all of the above mentioned locations. Its vernacular name among the eastern Polynesian islanders is "I-hi-hi"

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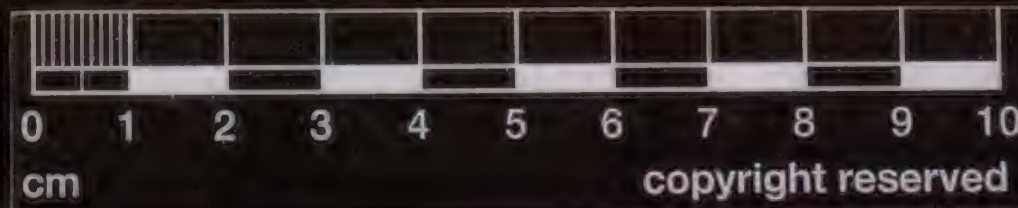
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Holocentrum erythraeum



*Hol. sammara**Holocentrum*

D. 11-1-12; A. 4-8; P. 1-7; V. 14; L. 5, 1, 2, 3, 1, 4.

The general form of this *Holocentrum* is rather slender, more so than usual in the Pacific species. The greatest depth of the body is less than a fourth of the total length. The head comprises one-third of the fish, caudal excluded. The eyes are oval, their greatest diameter as compared to the length of the head is as one to three. On each cheek may be enumerated five concentric rows of scales, and ten longitudinal rows along the greatest depth of the body. The posterior tip of the maxillary extends a little beyond the anterior border of the orbit.

The dorsal takes its origin above the base of the pectorals; its spiny portion which is quite deep, is the tallest at the second spine, whose height equals half the length of its own base.

Color brilliant silvery, in certain lights reflecting blue and golden. Belly white. Sides with numerous longitudinal blackish-brown narrow stripes.

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Cheeks spotted with blackish brown. Irides silvery, shaded with brownish-red. The posterior part of the head is tinged with the latter color, and the top, together with the dorsal region of the body is violaceous. Young dorsal pale greenish, and clouded along its middle third with reddish-black. The soft dorsal and anal are pale yellowish, more intensely colored on the rays, both anteriorly suffused with brownish red. Ventrals pale amber, the upper and lower portions reddish-black. Pectorals light pink. Ventrals colorless.

Length, 8 to 10 inches.

Habitat: Society Isls, Ponape Is.
Is.

Remarks: Not abundant at either of the above locations.

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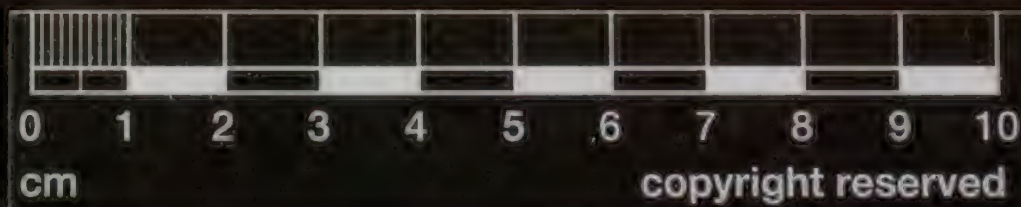
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Holocentrum sammara



*Hol. operculare**Holocentrum*

D. 11-1-12; A. 4-5; P. 1-2; R. 11; L. 5, 6, 7, 8, 9, 10.

This elegant species is nearly as slender as *th. lineatum*. The greatest depth of the body is nearly a fourth of the total length. The head constitutes about two-sevenths of the fish. The eyes are oval, their greatest diameter entering nearly three and a half times in the length of side of head. The maxillary does not quite reach so far back as the center of the eye. There exists five concentric rows of scales on each cheek. The second or third spiny ray in the dorsal is the tallest.

Color above, deep pinky-red; beneath silvery, tinged with the former color. Scales darker margined, and the longitudinal spaces between each row tinged with yellow. Belly white. Ventrals silvery, varied with pinky red. The spiny dorsal is black, margined above with white, the basal line pinky-red and white between the latter color and the black ground. The soft dorsal and anal are anteriorly tinged with pinky-red and have yellow rays.

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Pandal pinky-red, becoming yellow
posteriorly. Pectorals pinky-red. Ventrals
with a slight pinky tinge on their
rings.

Length, 8 to 12 inches.

Habitat—Society Is., Paumotu
Is.

Remarks—This beautiful fish
may be distinguished by its black
spiny dorsal, and the absence of stripes
on the body.

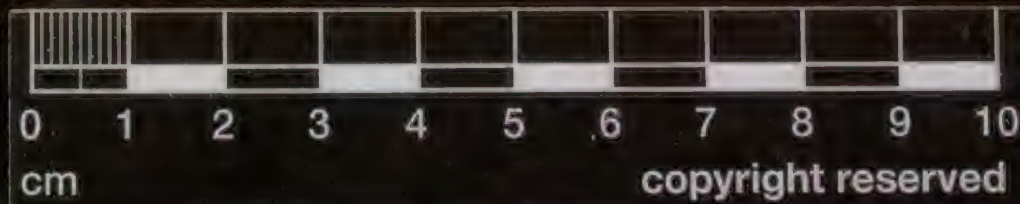
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Holocentrum operculare



Pompheris Qualensis, *burvieri*.*Pompheris Qualensis*, *burvieri*, *Stat.**des Poiss.*, *Vol. 2*, p. 299.

cc

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Lesson, *Zool. Voy. Voy.**Alle*, *Vol. 2*, p. 183.

D. 6-9; A. 3-40; V. 1-5; P. 12; C. 1, 1, 8, 2, 1, 1.

The general outline from the end of the snout to the dorsal fin, presents a gentle but very regular arch, and from there gradually slopes in a nearly straight line to the tail. The ventral line is somewhat similar, but rising from the origin of the anal fin at an angle of nearly 40° in a straight line to the tail, which gives the posterior half of the body a triangular appearance. The greatest depth taken beneath the dorsal fin equals one-third of the total length. The head as compared to the entire length of the fish, is as two to seven. The large eyes are circular, their diameter nearly half the length of the head, and situated rather near the end of the upper jaw. The hinder extremity of the maxillary reach a vertical line intersecting the center of the eye.

The dorsal fin is sub-trapeziform,

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its rays rapidly diminishing in altitude either way from the first articulation. Its height exceeds its base, which former is equal to half the length of the anal base. The caudal is sub-bifurcate, the upper lobe the longer. Ventrals small. Pectorals sub-falciform, their length equal to the height of the dorsal fin. The anal passes over a base nearly one-third the length of the fish; its anterior fourth is the deepest, being twice that of the remainder of the fin.

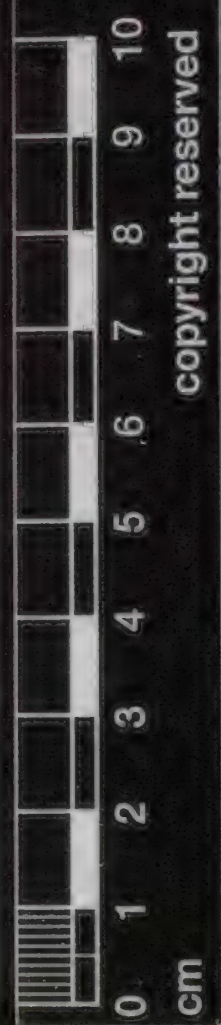
Color light grayish-brown, becoming deep brown along the back and grayish-white beneath. Pectoral base black. Snout silvery, clouded with brown. The anterior portion of the dorsal brown the hinder part gray. Caudal brownish red, becoming paler posteriorly. Anal colorless, with its scaly sheath deep brown. Pectorals reddish, becoming paler beneath. Ventrals colorless.

Length, 8 to 10 inches.

Habitat. King'smill Is., Society Is., Caroline Is.

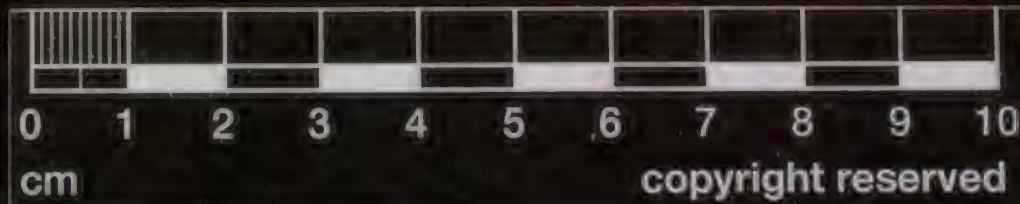
Remarks. We obtained many specimens of this species the King'smill Island, where it is called "Te-ba-re-re". At the Society group we saw but one, which is identical with the King'smill specimens.

NATURAL
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Pempheris mangula



Polynemus sp 375

B. 8; D. 8/14; A. 12; V. 1/5; P. 17; C. 4, 8, 7, 3.

The head comprises about two-ninth of the total length, or a little more than the greatest depth of the body, which latter is at the origin of the second dorsal fin. The snout is quite prominent and rounded, and the upper line of profile has a very gentle ascent to the dorsal fin. Eyes large, circular, their diameter entering about four times in the length of the head. The hinder tip of the maxillary extends posterior to the eyes. The filaments are six in number on either side.

The first spine of the dorsal fin is very small, the second nearly as tall as the third, which latter is the highest, and the following ones rapidly decreasing in altitude, so that the fin is deeper than long. The second dorsal is more elevated than the first, deeper than long, and its upper margin is obliquely concave. The anal is smaller than the opposite fin. The ventrals when closely appressed to the belly reaches the vent. The caudal is large, forked, the lobes pointed.

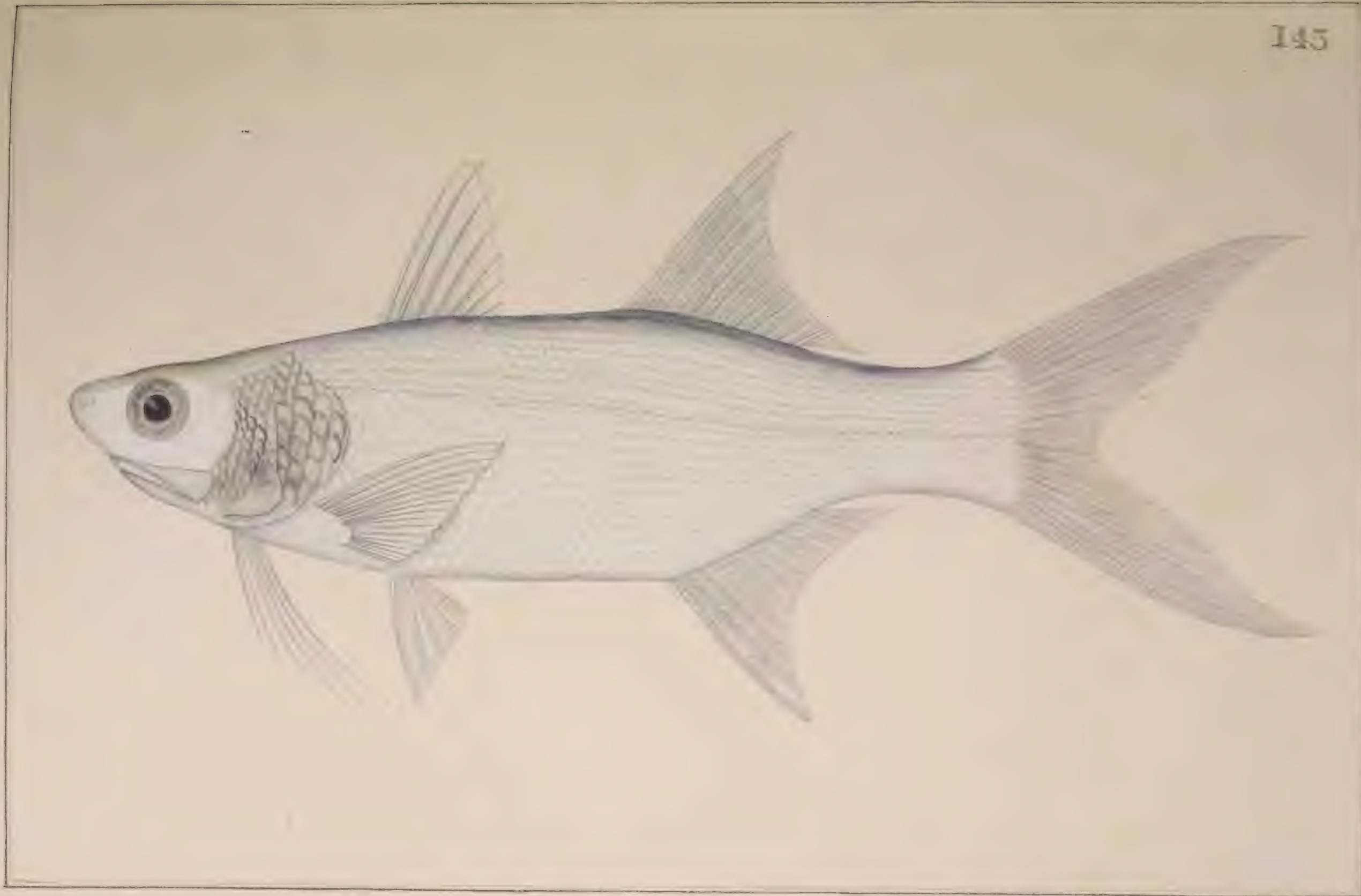
Color grayish silver. Body finely lineated longitudinally with obscure olivaceous more or less broken lines. Cheeks and gill covers silvery. Top head and snout light olivaceous. Irides silvery, varied with brown. Fins more or less dusky. Length 12 to 16 inches. Hab. Society Is.

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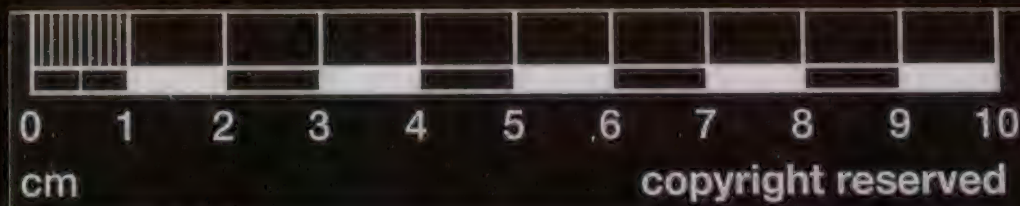
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Polynemus sexfiliis



serpens

Gempyleus ~~retrofrons~~, Garro

D. 7; L. 29/13-7; A. 13-6; P. 6; V. 6; S. 7, 8.

Form very much elongated, strongly compressed, its diameter being less than half its depth, which latter is the greatest at the base of the head and origin of the second dorsal, and is about one-nineteenth of the total length of the fish. There are no scales visible to the naked eye, and the smooth skin is marked with oblique impressed lines as represented in the figure. The lateral line is clavate linear. The dorsal outline from the head to the second dorsal is nearly horizontal and the ventral line is slightly concave. From the commencement of the second dorsal and anal the body tapers to the caudal. The head constitutes a little less than one-sixth of the entire length, and tapers to a pointed snout. The interorbital space is flat and longitudinally ridged. The gape of the mouth includes the lower jaw the longer, which when closed prolongs the upper line of the head. The hinder tip of the maxillary reaches as far back as the anterior limb of the orbit. Both jaws are armed with sharp ~~lanceolate~~ flat teeth, which are disposed in a single range, not closely set, and there is a short space without teeth on the anterior portion of the lower jaw. There are no small teeth in front of the upper jaw, but it is armed with three long lanceolate-shaped fangs, which when the mouth is closed are received in holes or sockets in the under jaw. The rather large eye is circular, its diameter entering six and a half times in the length of the head.

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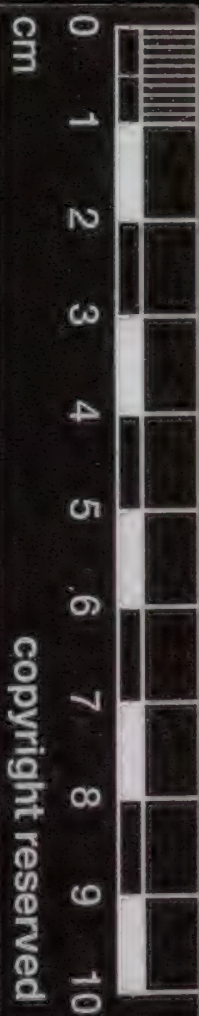
The first dorsal fin is very long, extending quite clear to the second fin and in height equals the depth of the body. The second dorsal is not so tall as the first, the upper margin obliquely concave anteriorly and the posterior two thirds is composed of seven stout rays resembling little spines but connected by membranes. The anal fin is similar and commences more posterior than the first above. The ventrals are rudimentary. The pectorals are small and the caudal is forked.

Color dull steel on the sides and black above. Sides silver clouded with brown. The anterior dorsal is dusky with blackish shades and slightly reflecting blue. Caudal olive black. Pectorals dusky. The other fins nearly colorless.

Length 2 to 3 feet.

Hab. - Sandwich Is.

Native name Haulindi jukhi.
Only captured in deep water far from the land.

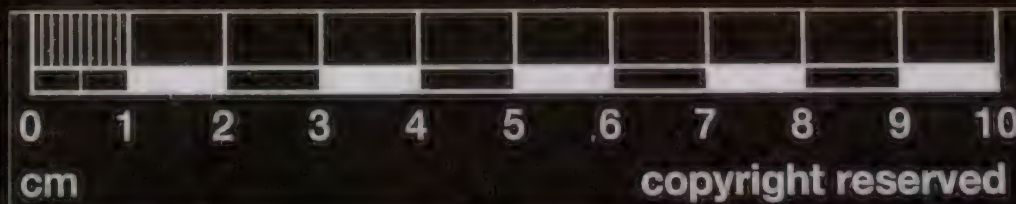
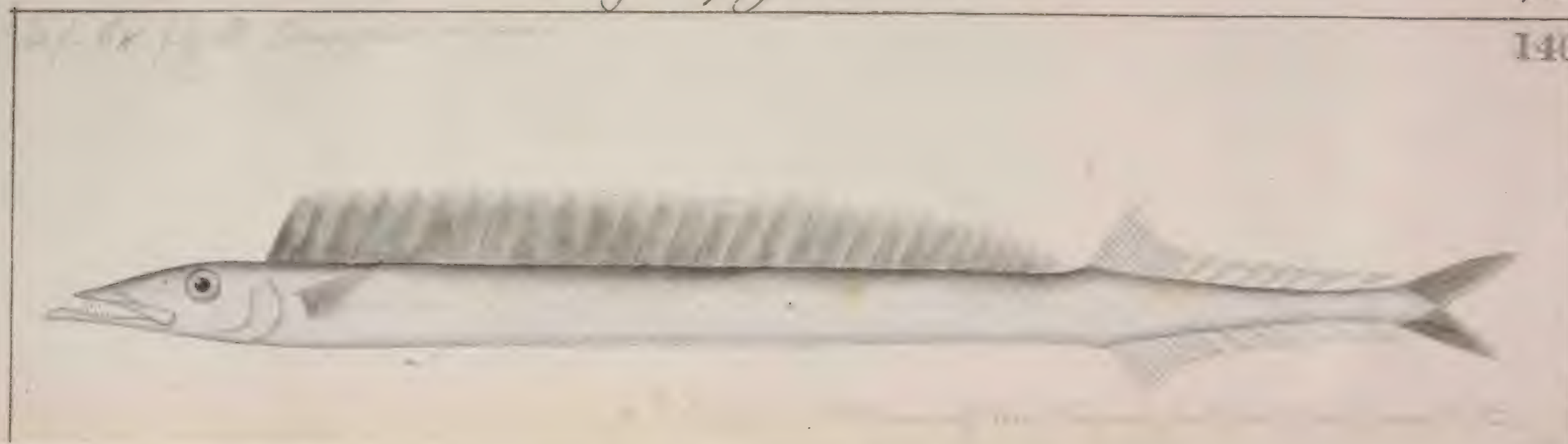


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Semipylus serpens

410

148



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Tyrosites prometheus
Gemphylus No 473

B. ?; D. 19-?; A. ?; V. 0; P. ?; C. ?.

This species is closely allied to No 470, but may be distinguished from the latter by the indented tubercle on the upper limb of the eye, the dusky dots behind the pectorals and the longer soft dorsal and anal fins. The first dorsal commenced some distance in advance of the hinder opercle margin, and the anterior portion of the fin is deeper than No 470.

We never saw but one specimen, which was procured at the Papeete market at Tahiti. We were told by the fishermen that it was seldom taken and always in very deep water outside the reefs.

The description which we drew up at the time we obtained the specimen, was lost in the wreck at the Viti Viti, so we can only afford the above information with a good colored drawing.

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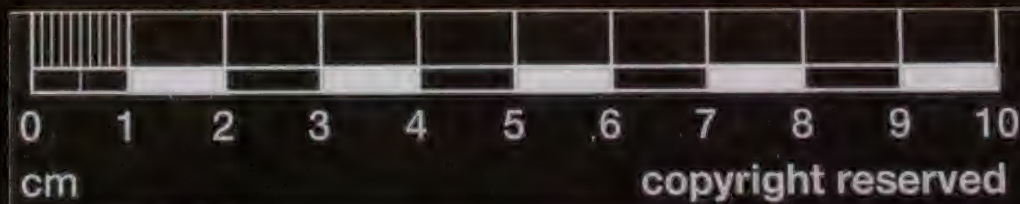


473

147



Thyrsites promethews



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Taxcoites promethicus
Gemphylus No 470

B. 6; D. 18-21; A. 17; V. 1; P. 14; C. 4, 1, 8, 2, 1, 2.

The greatest depth equals one-eighth of the total length, and the greatest thickness, which is at the base of the head equals half the depth of the body. (Outline see drawing which is very correct.) The pointed head is about two-fifth of the total length. Eye large circular, not quite even with the upper line of profile. Posterior nostril linear, and the anterior one oblong. The maxillary bone extends posteriorly as far as the corner. The lower jaw is the longer, and both armed with lance shaped teeth which decrease in size anteriorly, the lower larger than the upper ones. At the end of the lower jaw may be seen two short long canines. The vomer is armed with three very large lance shaped teeth. The palatine teeth very fine and disposed in a single row. Scales very fine and easily dislodged. The lateral line elevated thread-like. (Peculiar pieces see plate)

The dorsal fin rises over the hinder opercle margin, is gently arched

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above, the rays slender, the sixth or seventh
the tallest and the last very short. It passes
over a base nearly half the length of the
fish, caudal excluded. The height as compared
to length is as one to six. The second dorsal
commences close to the hinder termination
of the first fin, which it considerably over-
tops, and rapidly tapers away posteriorly
preserving a concave upper margin.
The two hinder rays are nearly separate
finlets. The anal fin is similar, but
smaller and shorter on its base. The
caudal is bifurcate. The ventrals are
entirely rudimentary. Pectorals rather large.

Color back above, steel-blue
beneath; when dead nearly uniform
steel-blue with large blackish clouds.
Sides silvery varied with black. All
the fins blackish.

Length 3 to 4 feet.

Hab. Cook's Isls.

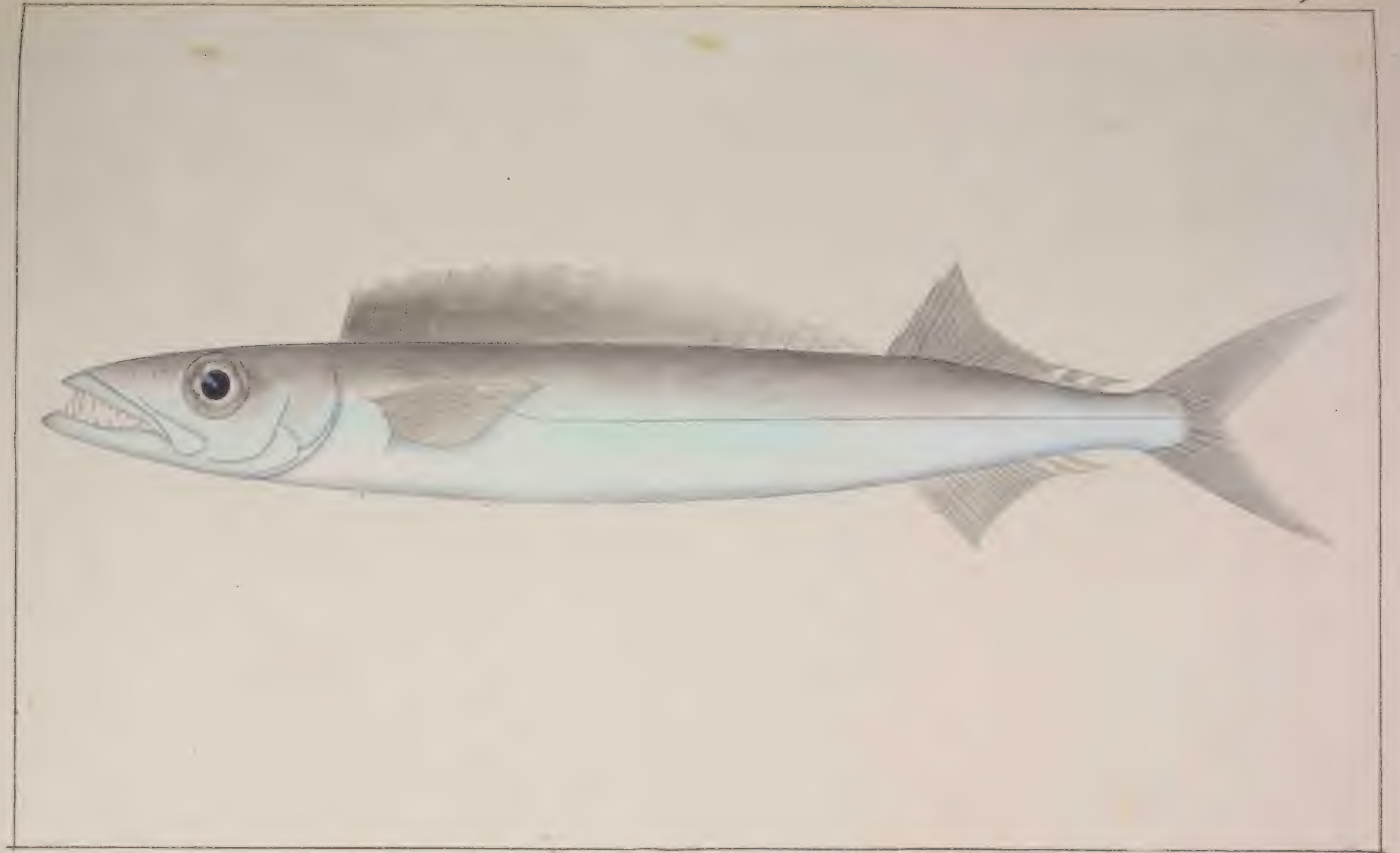
Only caught in very deep
water.

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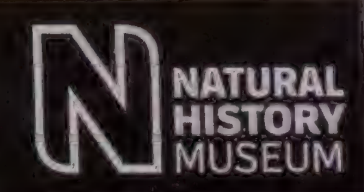
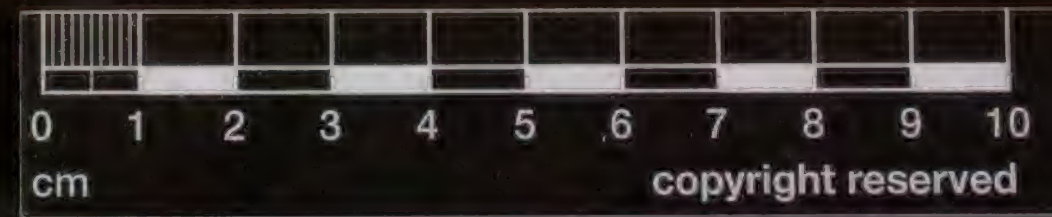
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Thysites promethews

148



Acanthurus No 444

D. 9-24; A. 3-20; V. 1-5; P. 15; C. 3, 1, 8, 7, 1, 2.

This species of Acanthurus is abundant at all the Polynesian Islands, and at all the eastern groups it has the same vernacular name "Marini".

The depth above the base of the ventral equals half of the length of the fish, caudal excluded. The scales and caudal spine are very small. The head comprises about two-ninth of the total length. The circular eyes are situated midway between the mouth and the origin of the dorsal fin.

For shape and proportion of fins see the colored drawing.

Color greenish ash, with darker clouds, and bluish white beneath. Band snuff brown or purple brown. Sides yellowish silver. Ventrals bluish white shaded with dusky. Anal bluish white becoming light greenish ash beneath. Caudal light greenish ash. Pectorals colorless. Dorsal the same color as the upper part of the body.

Drawing Nat. Size.

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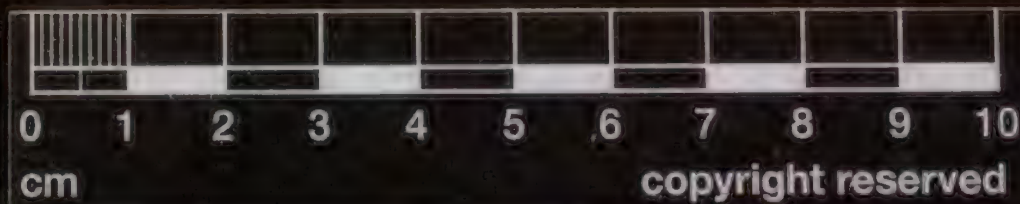
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Acanthurus triostegus

Acanthurus triostegus



guttatus
Acanthurus No 453

D. 9-28; A. 3-25; V. 1-5; P. 15; C. 3, 1, 1, 1, 1, 2.

This species is of an abbreviate ovate form, the greatest depth being equal to half the total length. The scales are minute and the caudal acetabulum small. The head is very precipitate, gibbous upward and forward of the eyes, which latter are large and circular.

The dorsal fin is strongly arched, deepest at the first articulate ray, which depth equals half the length of the soft portion of the fin. The caudal is emarginate. The anal is deeper than the dorsal, rapidly tapering posteriorly, slightly arched and a little shorter in its base than the soft dorsal.

Color of the recent dead fish brownish olive, darker posteriorly, more or less mottled with ^adarker hue, and the hinder half of the body decorated with rather closely set small whitish spots which are encircled with blue-black rings, the spots larger posteriorly. Flank with three vertical diffuse bands of a whitish or creamy hue, the first at the base of the head, the second which is the

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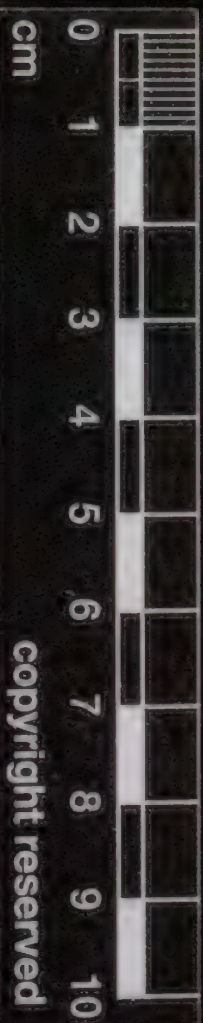


widest just behind the base of the pectoral and the third a little behind the middle of the body. Breast and lower part of head bluish white. Sides varied with brown. Pectorals slate color. Ventrals yellow mottled with slate. Dorsal olive brown or dusky brown the posterior two-thirds covered with dots like the body. Caudal blackish, the basal third and part of the peduncle white. Anal olive brown becoming blackish outwardly and spotted like the body.

Length 6 inches.

Hab. Sandwich Isls. Society Isls.
Kingman Isls.

Native name at the former group
Hapi at the latter Geba



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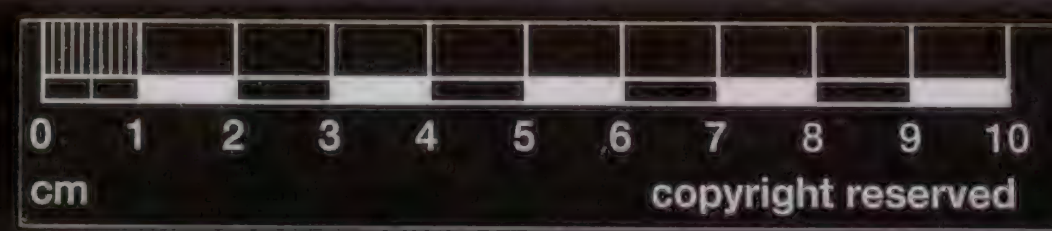
Acanthurus guttatus
Figs. 69, 70, 71

453

150



Acanthurus guttatus



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Genus Acanthurus, Lacép. and Bloch 151

Body ovate, strongly compressed. Scales minute. Head short, with a steep profile. Eyes high on the head, with a slight oblique furrow in front, above of which are the two minute nasal apertures. Mouth small. Teeth trenchant, notched and disposed in a closely set range. Tail armed with a mobile ventral spine, which can be folded in a broad groove. Branchiostegal rays four. Dorsal continuous, its soft portion the longer, anal long, with three anterior spines. Ventrals long, generally pointed, inserted just posterior to the pectorals, and their last ray united to the belly by a membrane. Caudal more or less emarginated.

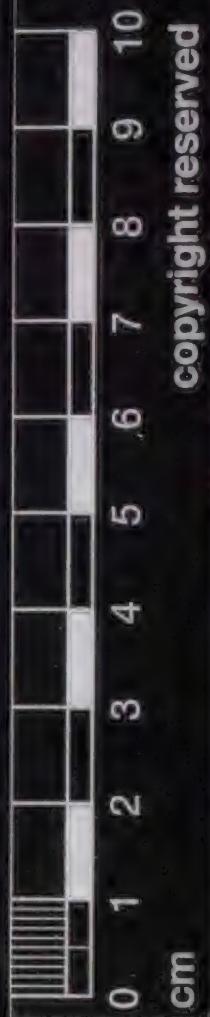
We have restricted this genus to such species, as have a short snout, low dorsal and anal, and notched teeth, the type of which is the Acanthurus triostegus, Lin.

¹⁰⁰ Acanthurus ^{Blochii} ~~gracilis~~, ~~Gerr.~~ grandis, Gerr.

B. 4; D. 9-27; A. 3-25; V. 1-5; P. 16; C. 4, 1, 7, 7, 1, 4

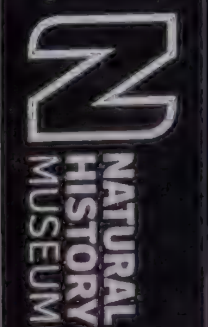
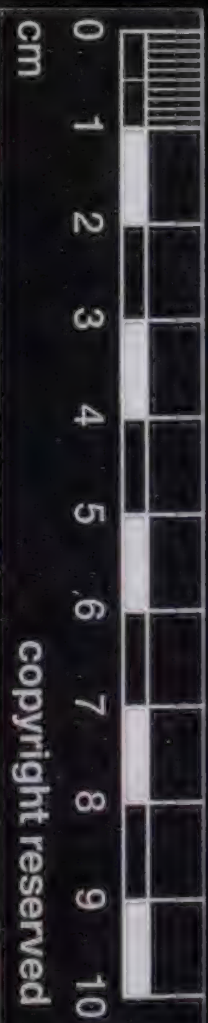
This large species has exceedingly fine scales, which can only be detected on the head by the aid of a good lens. The depth of the body equals about half of the total length, caudal fin excluded. The head is slightly convex on its upper line of profile, and rises up to the dorsal fin at an angle of nearly 90 degrees. The circular eyes are situated three times their own diameter distant from the end of the snout.

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The dorsal fin commences a trifle in advance of the ^{hind} opercle margin. Its first spine is very short, and the soft portion, owing to the posterior rays rapidly decreasing in height exhibits an obtuse angle on its hinder upper margin. The anal fin commences opposite to the ninth dorsal spine and is shaped like the soft part of the fin above. The ventrals when closely appressed to the belly, reach posteriorly as far as the third anal spine, and the pectorals are a little longer than the head. The caudal fin is larger, being nearly a third of the total length of the fish, and is sub-crescent shaped, the forks long and acutely pointed.

A single example of this species now before me, is no doubt much changed in color, having been dead some time. In fact all the species of this genus undergo a great change in their colors on the death of the fish. Our specimen is of a dusky brown, which fades into a dusky gray beneath and the breast, together with region of the nomenclature, is of a violaceous blue color. The region around the eyes, together with the sides, yellow, the latter clouded with reddish brown. The dorsal and anal are longitudinally banded with violaceous blue, and amber yellow, the bands narrow, disposed alternately, and those on the former fin, more or less uniting or forked. The caudal is of the same hue as the body and tinged centrally with violaceous blue. Ventrals amber yellow, with violaceous blue rays. Pectorals the same color as the body, which gradually fades into yellow on their posterior halves.



Length. 18 inches.

Habitat. Kingmill Isls. Society Isls.

Remarks This species is not by any means common. At the Kingmill Islands it is called "Perepa". Scales not represented in drawing.



151

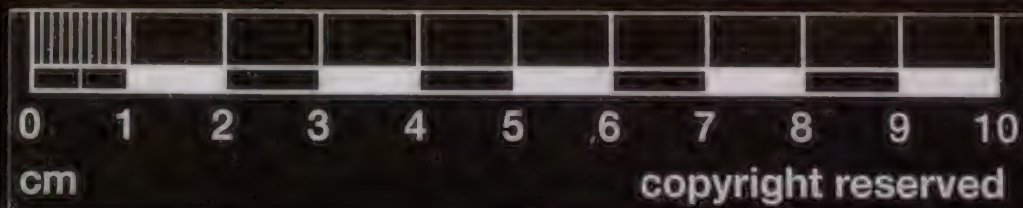
Notiz für den Lithographen

Seine copirten Briefe sollen gut als
Stift. Linien ununterbrochen unter dem Profil
H. Anstalt gebracht. In dem H. steht, steht
in der Höhe der, in H. selbst zu verzeichnen;
In der Höhe H. steht, was auf der linken Seite
H. steht, in H. verzeichnen.

Am besten wäre es, wenn der Lithograph ein
Zeugnis H. steht von der Person, welche
H.



Acanthurus blochii



Acanthurus lineatus, Lin.

D. 8-30; A. 3-25; V. 1-5; P. 16; B. 3, 1, 8, 7, 1, 2.

The general outline of this beautiful *Acanthurus* is ovate. The greatest depth of the body is just one half of the total length, caudal excluded. The head equals half the greatest depth of the body and is precipitately convex above. The eyes are circular in shape, their diameter entering about five times in the length of the head, and three times in the space between the angle of the mouth and their own orbits.

The caudal is crescent shaped, the forkes long and slender. The ventrals are long, acuminate, and their tips reach the seventh anal ray. The dorsal fin commences a trifle in advance of the hinder margin of the opercle, its spiny portion is the same length as the pectorals and the eighth spine is in height half the length of the spiny portion of the fin. The greatest height of the soft part is equal to one-fourth the length of the whole base. The anal fin starts from a point beneath the

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HISTORY
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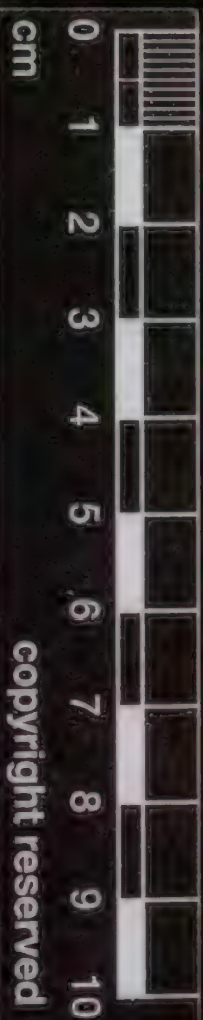
eighth or last dorsal spine and is shaped like the fin above.

Color yellow with a violaceous steel hue on the lower parts, the two colors divided by a narrow violet or violaceous blue line which extends from the mouth to the base of the caudal fin. The whole of the yellow ground is lined with light blue, black margined bands, the arrangement of which can be best understood by consulting the figure. Irides cupreous varied brown. The dorsal fin is dark olive, gradually becoming black posteriorly. Caudal black, with a large luniform light green patch, margined anteriorly with light blue and dark blue posteriorly. The anal fin is of a slate color edged with black and the basal portion shaded with orange and olive green. Ventrals orange red, anteriorly bordered with black or blue-black.

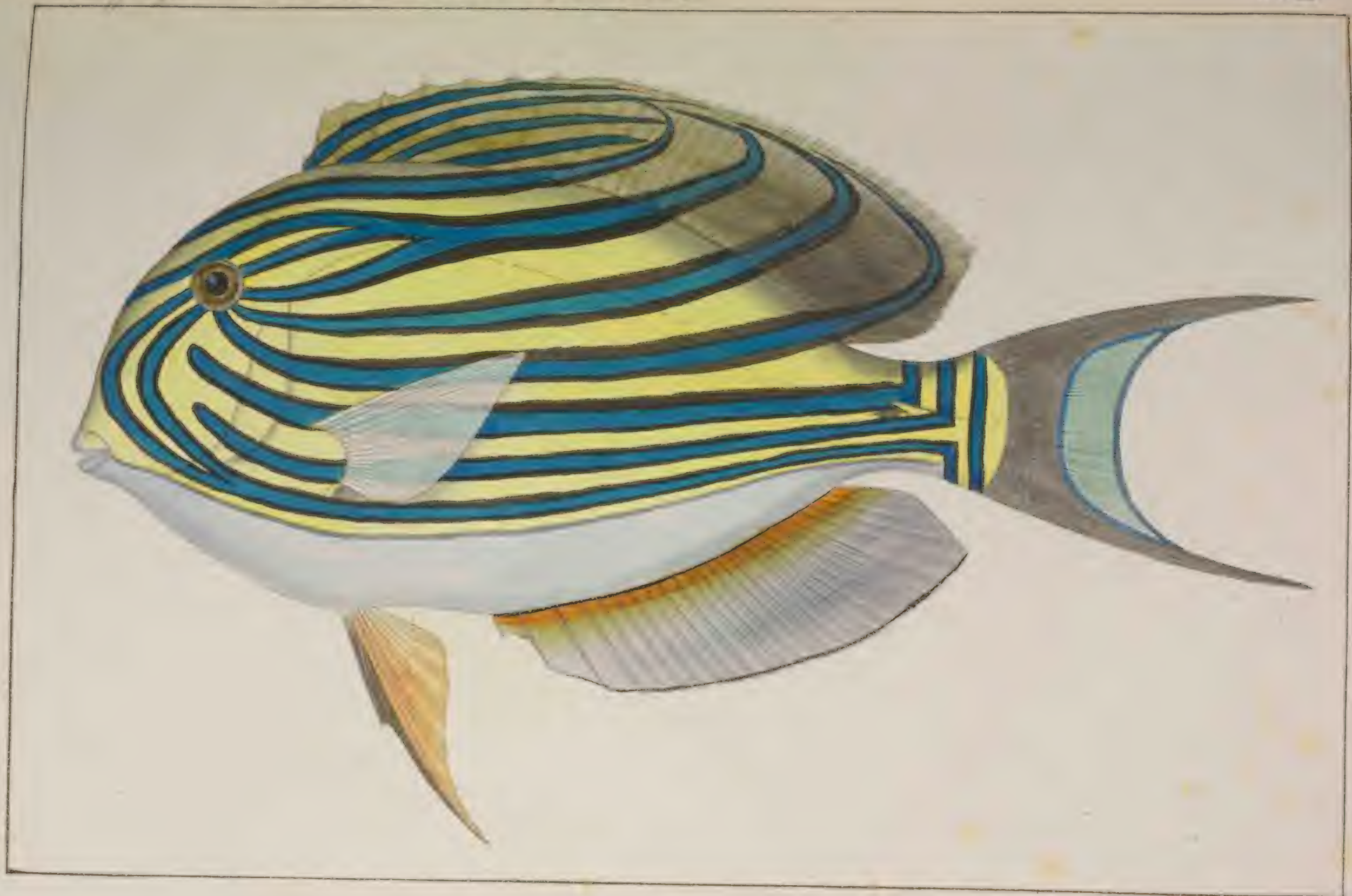
Length 10 inches.

Hab. All the Polynesian Is.
South of the equator.

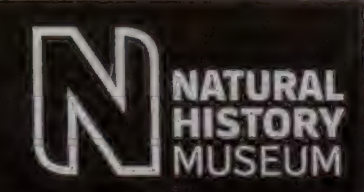
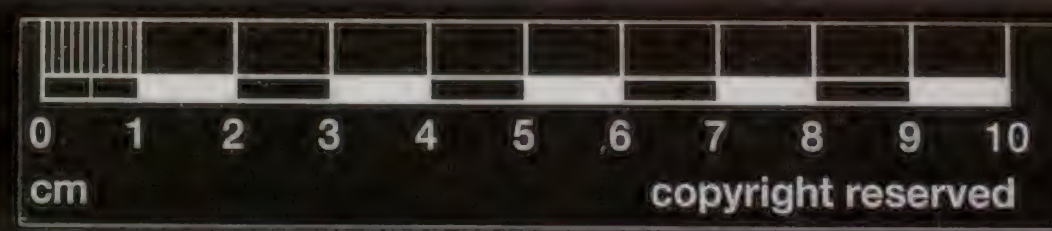
Native name at Tahiti "Maroon"



NATURAL
HISTORY
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Acanthurus lineatus



*dussanieri**Acanthurus* No 479

D. 9-28; A. 3-27; V. 1-5; P. 17; C. 4, 4, 7, 6, 1, 3.

The head, which comprises a fifth of the total length, is gibbous over the mouth, and the greatest depth of the body is nearly half of the total length, caudal fin excluded in the measurement. The scales are minute and rough, and the caudal vertebra is larger than usual. The sub-circular eye enters nearly four times in the length of the head.

The dorsal fin commences a trifle in advance of the hinder margin of the operculum, and passes over a base half the length of the fish. It gradually increases in altitude to the ninth spiny ray which in height equals half the length of the head. The soft portion which is higher than the spinous, is angular posteriorly.

The anal commences beneath the eighth dorsal spine, and is of the same height and shape as the soft dorsal. The ventrals are long, pointed, and the large caudal has the upper and lower angles considerably prolonged.

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Color of the dead fish brownish
olive, passing into gray on the abdomen,
and violaceous on the breast and lower
part of the head. The former ground
color is decorated with close flexuous
longitudinal blue lines; those on the
head oblique. Spinal sheath margined
with black. A large yellow spot marks
the base of the pectorals and a band
of the same hue passes from the
origin of the lateral line, through the
eye and over the interocular space.
Ventrals yellow. The dorsal and anal are
yellowish olive, each ornamented by a
blue basal band, the former edged with
black above, and the latter with blue,
and an intramarginal black line.
Caudal blackish, the central portion
violet, spotted with black. Ventrals pale
steel blue, with olive brown rays. Pectorals
dusky.

Length 18 inches.
Hab. Sandwich Isls.
Station name "Plane".

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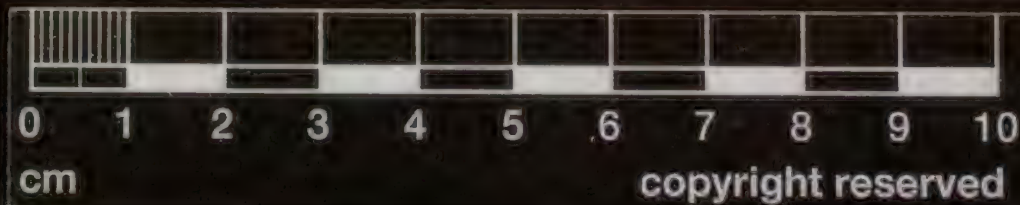
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Acanthurus dussumieri



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HISTORY
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B. 9-25; A. 9-24; V. 1-5; P. 15; C. 2, 1, 2, 3, 1, 2.

This species is of an oblong oval outline, and the greatest depth of the body is a little more than half the distance from the end of the snout to the caudal base. The head constitutes nearly a fifth of the total length, and its upper profile rises from the snout up to the interorbital space at an angle of 55 degrees. The eyes are sub-circular. Scales very fine, and not represented in our drawing.

The soft dorsal and anal are deeper in proportion to their length than in the preceding species. The ventrals are acutely pointed, their ^{length} equal to one third that of the dorsal base, and the pectorals are a little longer. The caudal fin, when partially expanded exhibits a concave emargination, but when fully expanded is very broad and fan-shaped.

Color yellowish brown which passes into bluish gray on the breast and belly. The head and body are closely pencilled with light blue lines, which on the body are disposed horizontally, and more or less broken and anastomosing. Those on the breast are more or less verrucate, and on the head they are undulated and run upward and backward. Ventrals golden.

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All the fins are of the same color as the body and gradually become darker toward their extreme margins. The posterior central portion of the caudal is bluish gray, and a blue black spot marks the hinder termination of both dorsal and anal fins.

Length, 7 inches.

Habitat: Society Isls.

Remarks: By raising the pectoral fins we discover traces of a buff color, which may have been the color of the living fish.

Genus Acanthurichthys, Garrett.

We establish this genus for those species of Acanthurus, which are characterized by a more or less long snout, finer scales, and deep dorsal and anal fins; which are strongly arched, and the former has but five spiny rays, while in the true Acanthurus there are always nine spines in that dorsal, that fin. Some of them have in advance of their ^{anterior} a large patch of closely-set, ^{short} rigid hairs which form a sort of brush.

339 Acanthurichthys flavescens, Garrett
typicus, Garrett

D. 5-25; A. 3-21; V. 1-5; P. 14; C. 3, 1, 3, 7, 1, 3.

The general aspect of this species is slightly ovate, and slightly arched on both upper and lower outlines. The greatest depth of the body is nearly about half of the

total length, caudal fin excluded. The
hairs of the posterior brush-like pectorals are
rigid, closely set and coarse. The head, which
terminates in a considerably produced snout,
comprises about three-thirds of
the total length. The eyes are large, round,
their diameter nearly a fourth as long as
the head, and are situated three times their
own diameter upward and backward from
the end of the snout, one diameter apart,
from each other, and one and a half diam-
eters from the first ^{upper} dorsal fin. The profile
from the base of the prominent snout up to
the dorsal fin is very steep, slightly convex,
and has an ascent of 60 degrees.

The dorsal fin is strongly arched,
the spines granulated, the first very small,
not more than a fifth as tall as the ~~first~~
last, and the first or second articulation on
the snout elevating, their height equal to half
the greatest depth of body. The anal fin rises
over a base half as long as the post-caudal
excludes. Its anterior spines are granulated,
and like those on the dorsal, the first is
very small. Its outline is strongly arched,
but not quite so deep as the fin above.
The ventrals and caudal are of about equal
length, the latter convex, when expanded.
The pectorals are large, their length equal
to a fourth of that of the entire fish.

The general color of this fish
is a deep brown, becoming black posterior-
ly, and the flanks are closely ~~marked~~ finely
lined later longitudinally, with slender lines

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white lines, which are more or less wavy,
interrupted, and anastomosing. Head, breast
and shoulder are closely dotted with light
blue or bluish white. Sides snuff-brown.
The dorsal and anal are of the same hue
as the body and gradually become black
posteriorly. Ventrals black, and together with
the two former are sometimes edged with
blue. The ventrals are blackish brown, and
the pectorals have amber colored rays.

Length, 7 inches.

Habitat: Society Isls.

This is quite a common species
at the Tahiti group, but I do not remem-
ber noticing it at any other location.
Its native name is "Iriaso" which literally
means prurient skin from Iri skin and
aso prurient. The skin, when eaten produces
a prurient sensation in the mouth.

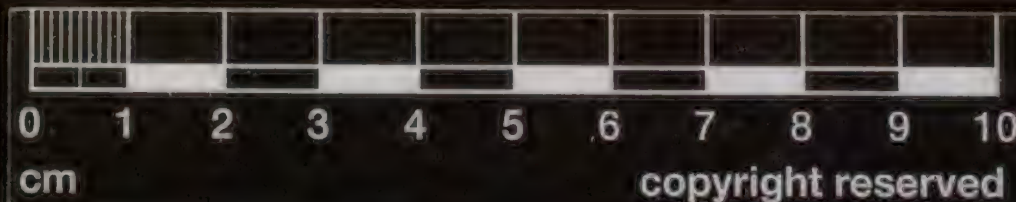
The dotted head and lineated body
will readily determine this species.

338 *Acanthurichthys marmoratus*, Forst.

At the Sandwich Islands I observed
two examples of this rare fish, both
of a uniform rich yellow, with orange
red shades on all of the fins. Having
unfortunately lost my notes which I
made at the time, I can give but
a meagre description. The color drawing
will convey a tolerably correct idea.



Acanthurus linedatus



Acanthurus humeralis, Val. 446
155

Acanthurus humeralis Val. Hist. des Poiss.
= = = = = Lacépède et Val. Hist.
des Poiss. Vol. 10, p. 231

Acanthurus sparai, Less. Voy. Coquille, Vol.
2, p. 147, pl. 27, fig. 1.

Acanthurus humeralis, Eyd. et Aud. Voy. Acad.
Vol. 1, p. 167, pl. 2, fig. 3.

D. 9-25; A. 3-24; V. 1-5; P. 16; C. 2, 1, 4, 2, 1, 2.

The head, which comprises a fourth
of the fish, caudal excluded, is precipitately
arched on its upper profile, which rises up
to the caudal fin at an angle of ^{about} 54 degrees.
The greatest depth of the body is twice the
length of the head, and the super-line
is rather depressed along the base of the
spiny portion of the dorsal fin. The scales
are exceedingly small. The eyes are subcir-
cular, their diameter about a fourth the
length of the head.

The dorsal fin commences midway
between the hinder margin of the operculum
and the eyes, its anterior ray is very small,
the others graduated upwards and the spiny
portion is a little longer than the head. The
soft rays almost invariably increase in
altitude posteriorly, as far as the seventeenth
or eighteenth, whence they suddenly become shorter,
forming a marginal angle. The similar
anal takes its origin at a point corresponding
to the eighth dorsal spine. The Ventrals are
pointed, and the pectorals are in long, ad-

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the head. The caudal fin is convex on its posterior margin, and the angles are prolonged into filaments, the lower the longer, and their length varies in different individuals.

Color deep cinnamon brown, paler on the breast and abdomen, ^{above the pectorals} and marked with an oblong horizontal orange red spot, bordered with blue black, which is about as long as three fins, and on a line with the eyes, caudal spine blue-black. Ventrals dark brown with a fine golden ring next to the anus. All the fins the same color as that part of the body from which they arise, the dorsal and anal with a slender blue black edging, and the latter terminates with a submarginal blue black band. The caudal is marked with ^{large} elongate white spot which is parallel and contiguous to the margin of the fin. Pectorals colorless on their hinder margins and the pectorals are tipped with blue-black.

Length 11 inches

Habitat Society Is., Palmyra, Johnston Is.

Remarks My description and drawing are from a living specimen, preserved at the former location, which measured nearly 11 inches in length.

The example which I obtained at the second island, differed but little from the one preserved at the former location, except showing the dorsal and abdominal purplish, the green of the caudal skin.



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yellow, and a shade of the same hue
along the dorsal and anal base.

Lesson, who obtained his specimens at
the Society Isls, represents in his figure
the shoulder band bordered with black,
and a wide rich blue band along the base
of the dorsal fin, and the anterior margin
of the same hue. ~~Tridac~~ red and
the caudal margined with white. The blue
margined on the pectorals is probably an
error of the artist.

The figure in the zoological plates of the
Voyage of the Bonite is probably copied
from a specimen preserved in spirits.



The caudal fin is convex in
and represents the margins of the pectoral
and caudal as being yellow which is
an error. There are no bands on the other
two caudal fins.

There is not the least doubt of the
identity of Lesson's species with Pallidus
humeralis.

At the society island the name of
this species is "humeralis" and not as Mr.
Lesson says "Epurari", which is quite a
different fish, belonging to a different
genus of the same family. The Sandwich
Islanders call it "Macrae".

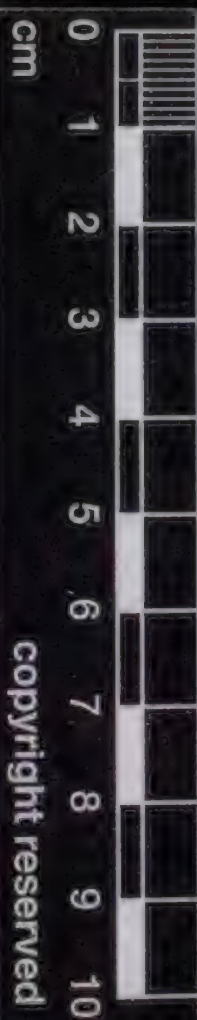
The caudal fin is convex. The
caudal fin is marked with ^{transverse} rays, elongate white
which is parallel and contiguous to the
margin of the fin. Pectorals colorless on their
margins and the pectorals are top
blue-black.

Length 11 inches

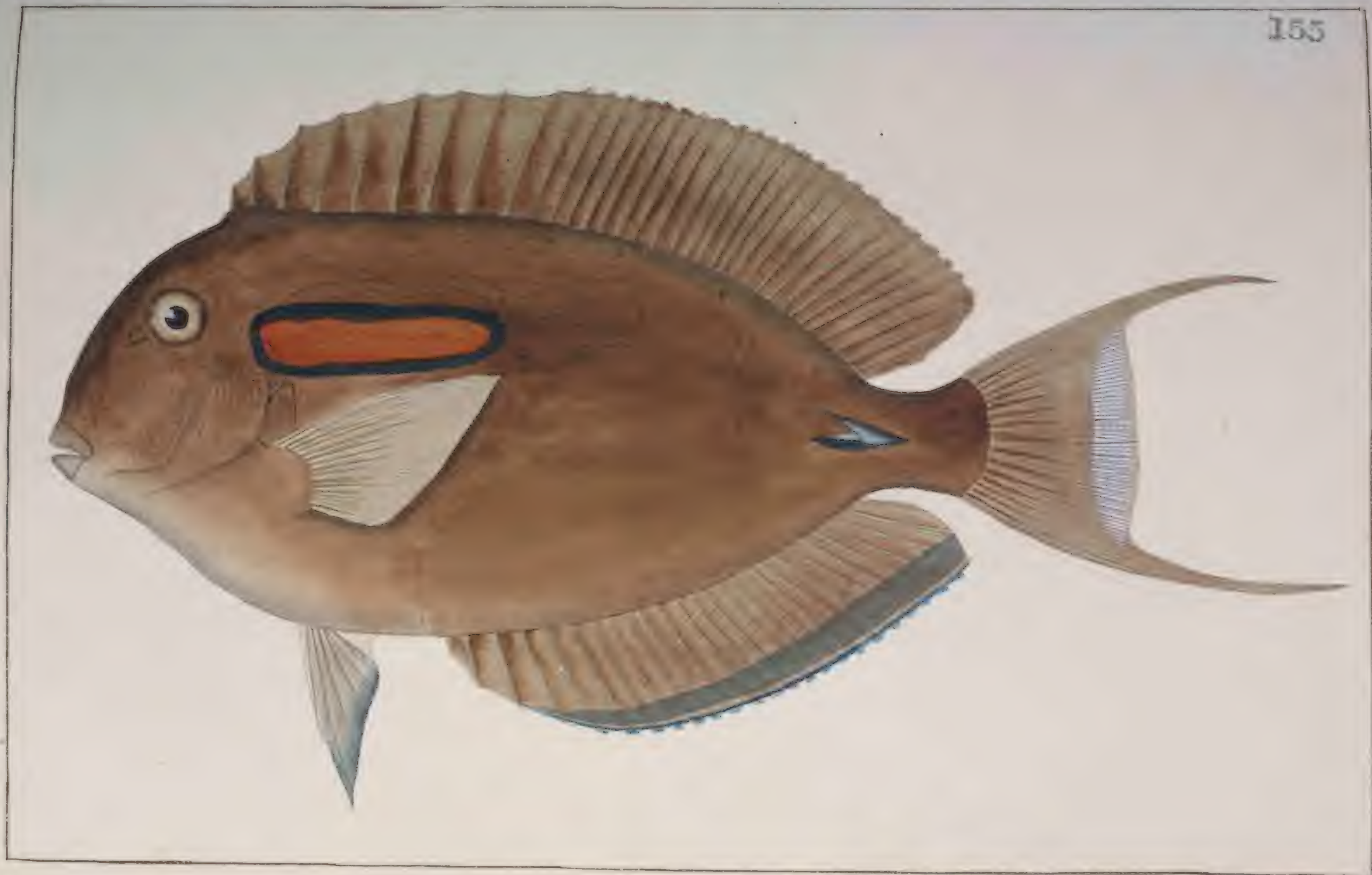
Habitat Society Is., Pannu Is.
with fish.

Remarks: My description and drawing
from a living specimen, from a
former location, which measured
11 inches in length.

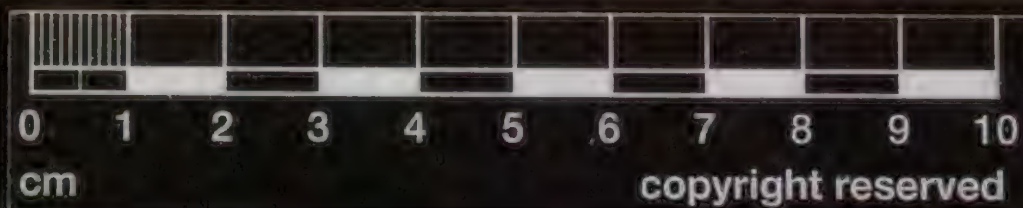
The example which I obtained at the
same locality, differs but little from
the one at the same locality.



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Acanthurus divaceus



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gahm

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Leanthurus guttatus, Günther 79

D. 9-24; A. 2-25; V. 1-5; P. 16; S. 2, 1, 2, 1, 1, 3.

The general outline is oblong oval. Scales very minute, compressed, not so fine as in the gutta. The head constitutes about a fifth the entire length of the fish, and the upper line of profile is symmetrically and frequently marked. The greatest depth of the body compared to the total length is about one to three. The large eye is circular, its diameter about one-fifth the length of the head and two times more or half its own diameter distant from the angle of the mouth.

The ventrals are long, very narrow, their tips extend as far back as the fifth anal ray. The pectorals are as long as the head. The caudal is large, lanceiform, with slender pointed fork. The middle rays are only half as long as the upper and lower ones.

Color of the living fish olivaceous brown. In some instances there is a violaceous tinge above the eyes and on some shade in front of them organs. The posterior half of the caudal trunk pure white. An abbreviated longitudinal black band, margined with

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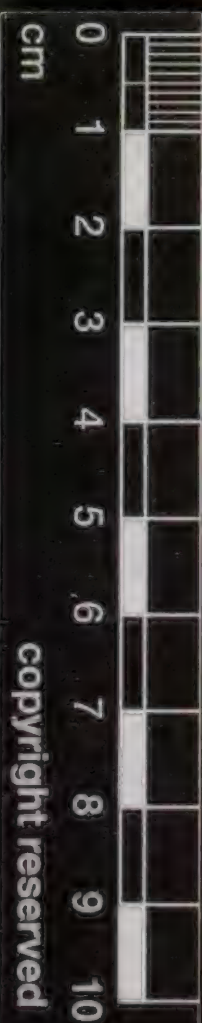
violet, on the shoulder. A slender lanceolate black stripe on the posterior part of the body, which embraces the caudal spine. Venter deep brown with an inner golden, remaining deep blue. The posterior halves of the dorsal and anal are the same color as the body and their anterior portions olivaceous yellow, both with a thread-like black stripe and a similar blue margin. The pectorals are the same color as the body and ^{anteriorly} edged with blue. The pectorals are broadly margined posteriorly with yellow. The caudal is dusky gray, its base white and its posterior margin shaded off with violet.

The dead fish is more or less clouded with brownish, bluish and greenish gray. The violet margin of the caudal becomes white, and the humeral band loses its pulsaceous margin.

Length. 10 inches. Hervey Is. Ponape.

Habitats. Society Is., Kingman Is.

Remarks. I obtained numerous specimens of this well characterized species at the two above locations. The specimens differ somewhat in the shape of the head, some being more gibbous in front of the eyes than the one figured. They also vary in the number of the soft rays in the dorsal and anal. The two black stripes are constant characters and will at once determine the species.



NATURAL
HISTORY
MUSEUM



Acanthurus grahami



Length - 18 inches

157

Habitat - Kingsmill Is. Loc. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

Remarks - This species is not by any means common at the Kingsmill Is. and it is called "Terepa". Scales not represented in drawing.

340

Acanthurus nigricans, Lin.

B. ; D. 9-32; A. 3-28; P. 15; V. 1-5; C. 3, 1, 3, 1, 3.

Chaetodon nigricans, canda albicente, Art.

Chaetodon dentibus emarginatis, Bloch, sp. 90

Chaetodon nigricans, canda albicente, Sel. Mus. Vol. 3, p. 82, P. 203.

Chaetodon nigricans, Lin. (Gmel) Vol. 1, p. 1245.

Acanthurus glaucopareus, Cuvier, Hist. Nat. des Poiss.

Acanthurus aliaia, Lesson, Voy. Coquille, Vol. 2, p. 130.

This species is of an abbreviate ovate form, the depth of the body being considerably more than half of the total length, caudal excluded. Scales very fine, so that we have not represented them in our drawing. The head constitutes about a fifth of the total length, and its upper profile is rather gibbous over the eyes. From the slightly prominent snout, the line of profile is very precipitate, rising up to the interocular region at an angle of about 70 degrees. The eyes are large, circular, and situated a little more than twice their own diameter from the snout.

NATURAL HISTORY MUSEUM

0 1 2 3 4 5 6 7 8 9 10 cm



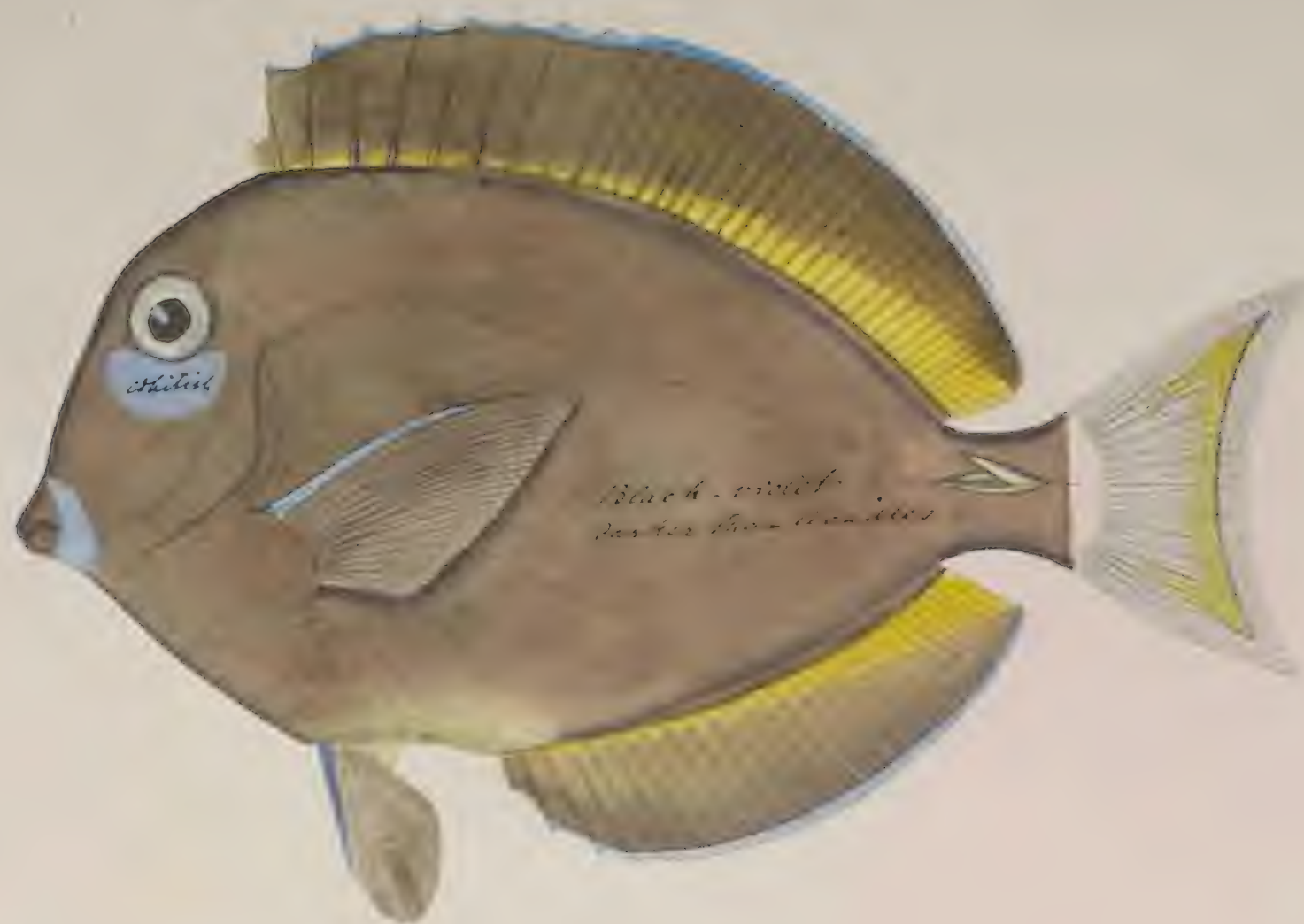
of the snout,

The dorsal fin is slightly more arched on its upper margin than the back, and slightly tapers either way from the first articulated ray. The anal commences beneath the eighth dorsal spine and is not quite so dark as the fin above. The ventrals have their tips rounded off, and the pectorals are half as long again as the former fins. Caudal with a deep concave emargination and is as long as the ~~ventrals~~ pectorals.

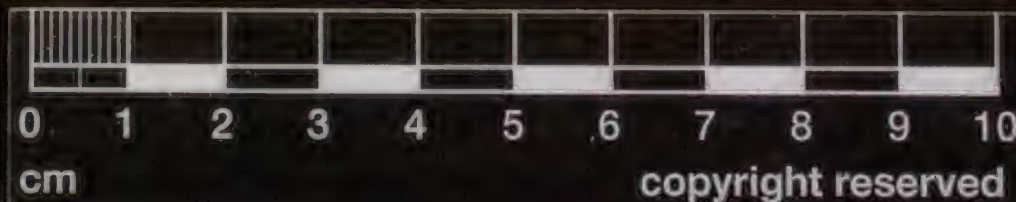
Color rich dark brown, with the abdominal region brownish yellow. The groove that receives the armature, are yellow. A large oblong spot beneath the eye, and a band passing under the muzzle, light blue or bluish white. Irides greenish silver. The dorsal and anal brown, edged with blue, and tinged with yellow along their base, color becomes more and more diffused posteriorly. Ventrals and pectorals brownish, the former edged anteriorly, and the latter superiorly with blue. The caudal is light grayish, which color unites abruptly with the ground color of the body just behind the armature, in a ventral line. The posterior half of the fin is ornamented with black edged yellow suffuse fascia which runs parallel with the concave margin, and sends out two converging anterior short rays.

Length 5 inches.

Habitat: Kingsmill Is., Society Is., and every other growth that I have explored. The lining fish is dark violet black.



Acanthurus glaucopareius



*celebensis*Acanthurus No 435-

D. 8-30; A. 3-25; P. 1-7 P. 16; V. 3, 1, 7, 7, 1, 3.

The greatest depth of the body as compared to the total length of the fish is as two to five. The head comprises a fifth of the total length. The eye is sub-circular in shape and its greatest diameter enters three times in the length of the head and once in the interocular space. The scales are very small.

The dorsal fin extends over a base a little more than half the entire length of the fish. Its spiny portion is composed of eight rays and comprises a third of the fin. Its soft part as well as the anal fin is strongly angulated posteriorly. The caudal fin comprises about a fourth of the length of the fish and is concave on its hinder margin. The ventrals are narrow, pointed, and the pectorals a trifle exceed the former in length.

Color light olivaceous yellow, with an orange spot above the base of the pectoral fin. The head is of a dingy lead color, and an oblong vertical blue-black spot marks the hinder margin of the gill covers. An orange haze may be seen in the ocular region, and the

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cm

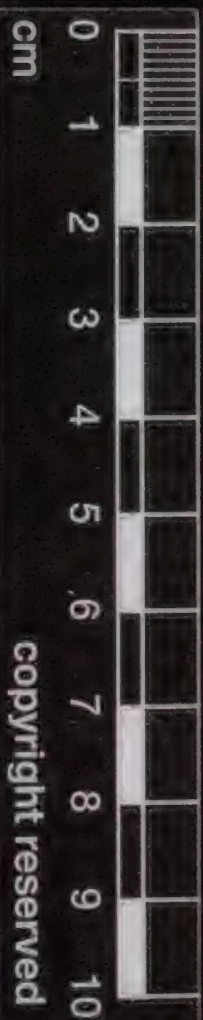


snout is encircled by a white ring. The
irides are lead color. The vertical fins
are of a dark lead color, and the caudal
is broadly margined behind with orange-
yellow. Ventrals yellowish olive, mottled
with lead color. Pectorals orange-yellow
with lead colored bases.

Length 6 inches.

Hab. - Society Is.

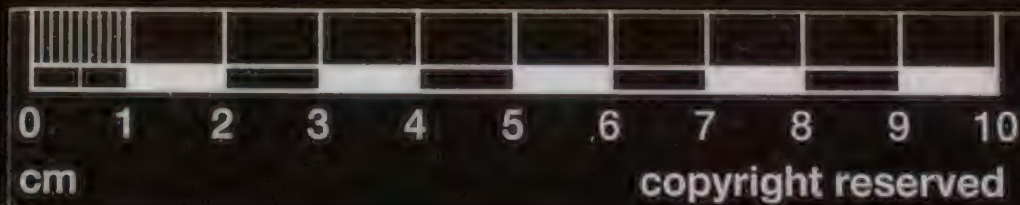
A very rare species.



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NATURAL
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MUSEUM



Acanthurus celebicus



achilles, Shaw

Acanthurus no 441

D. 9-31; A. 3-28; V. 1-5; P. 15; C. 21, 7, 7, 1, 2.

The head comprises about one fourth of the total length, caudal excluded. The greatest depth which is at the commencement of the soft portion of the dorsal fin, is a little more than half of the entire length of the fish, excluding the caudal fin in the measurement. The head is very preopistate rising up to the occipital region at an angle of 60° . The eyes are sub-circular, inserted three times their diameter upward and backward from the angle of the mouth. The scales are very minute. The large red spot is smooth and naked.

The dorsal and anal fins are arched in outline, rather deep and the articulated rays are bifid. The caudal has the two angles prolonged into slender acute tips. Ventrals acutely pointed.

Color of the living fish rich dark violet or violet-blue, which changes to a dark brownish black when dead. A pale spot encircles the vent, which in some examples is orange red, and light blue or bluish green band passes under the chin. A large sub-orbit vermilion red

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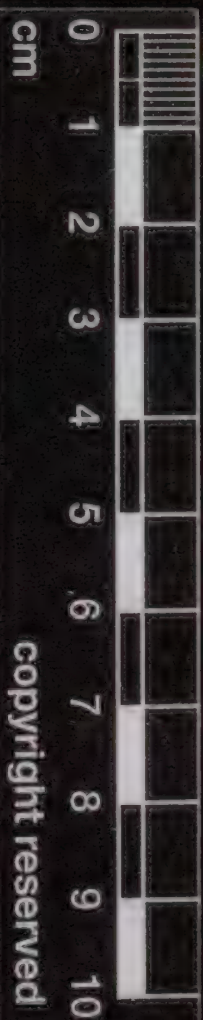
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spot marks the posterior part of the body, sides brownish or bluish gray. The vertical fins the same color as the body, the soft portion of the dorsal and anal with a narrow bluish white or light blue edging and each has a ^{vermilion red} basal streak edged light blue, which tapers away anteriorly. The caudal is ornamented with a large vermilion red luniform spot, and the hinder part of the fin is white. The pectorals are light violet, and the ventrals are the same hue, with their anterior margins rich blue.

Length 9 inches

Hab. - All the Polynesian Isles

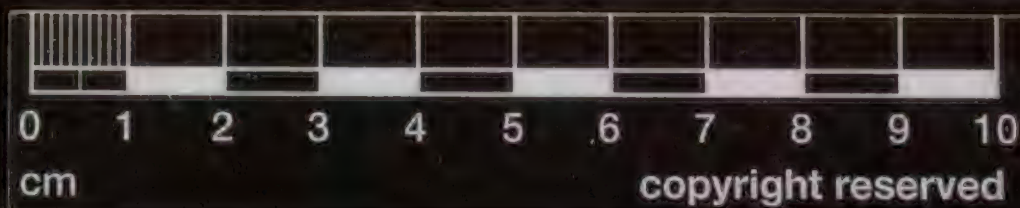


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NATURAL
HISTORY
MUSEUM



Acanthurus achilles

3



Acantharus superbus, Lin.

98
160

The colored drawing was made from two examples collected at the Kingsmill Isls, and represent the appearance when alive.

I cannot give any further account of this well known species as I made no notes at the time.

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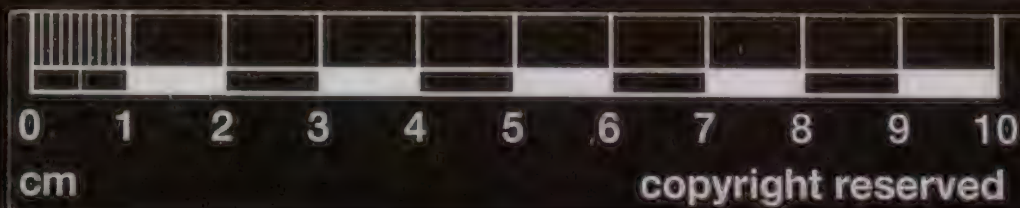
0 1 2 3 4 5 6 7 8 9 10
cm

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Acanthurus hepatus



We separate these fishes from the typical Acanthurus, which they resemble in every respect except the peculiar structure of the teeth and lower lip, the former are very slender, flexible and pectinated on one side. The lower jaw is entirely angular and the lip very thin.

Etenodon Luvieri, Garrett

Acanthurus etenodon, Cuv. et Val. Hist. Nat. des Poiss.

? Acanthurus strigosus, E. S. Bennett. Zool. Jour., Vol. 4, p. 41. 1828.

D. 31; A. 30; P. 15; V. 1-5; C. 2, 1, 7, 7, 1, 2.

The general outline of this species is of an oblong oval shape, the greatest depth over the ventrals, which equals half of the total length, caudal excluded in the measurement. Scales minute.

The head comprises about a fifth of the total length, and its upper profile is gently convex and rises up to the dorsal fin at an angle of about 5°-6 degrees. The eyes are circular and situated just three times their own diameter from the end of the snout.

The dorsal fin rapidly increases in height up to the first vertebrae to rays

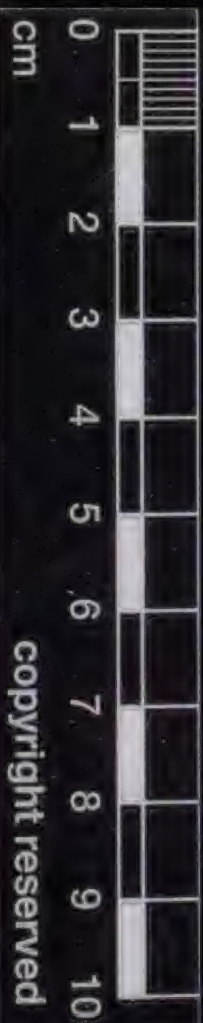
whence the fin almost insensibly ^{increases in} height ~~behind~~ as far as the 21 or 22 soft rays, posterior of which they rapidly decrease in altitude, so as to give that part of the fin a rounded margin. The anal as well as the dorsal is very dark, at least more so than in the generality of species of *Osteomus*. The very long ventrals are pointed, and the pectorals are as long as the head. The caudal fin exhibits a deep posterior concave emargination, with acute angles, so that the fin is sub-crescent shape.

Color brown, with a violaceous tinge on the lower parts, from the head to the anal fin. The flanks are closely lined longitudinally with slender violet lines, which are more or less confluent, wavy, broken or forked. Clavular regions dotted with orange. Sides pale, varied with light blue and brown. The dorsal and anal are reddish fawn, and marked with closely set horizontal narrow greenish ribbons. Caudal dusky fawn. Ventrals purple black, and the pectorals, dusky amber.

Length 9 inches.

Habitat: Society Isls.

A common species found all through the *Polyneesian* ~~Is.~~ Seas



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of its most obvious characters. The natives
called it "Lani praba" from its brown
yellow color, resembling that of the dead
leaves of the Dracina terminalis.

The head is more precipitate than in typicus and nearly rectilinear. The body is deeper and less arched on the back than the preceding species, and the caudal fin has a slight concave emargination. The ray formula, as represented in our drawing is D. 5-28; A. 2-21; V. 1-3; P. 19; 63; 1, 7, 8, 1, 3, which may be considered as an approximation to the true formula.

Length, 8 inches. For Bennett's description
see Zoological General

Habitati Terni Inish Isl.

Acanthus rostratus

164

10² Acanthurichthys longirostris, ^{*Acanthurus*} ^{*restratus*} ¹⁶⁴ ^{Gerritt}

B. D. 5-24; A. 3-20; K. 1-5; P. 14; C. 4, 1, 7, 7, 1, 4.

This remarkable fish differs from the two preceding in its long slender snout, and the absence of the posterior brush-like hairs. The scales are very small and strongly ciliated as shown under the lens.

The body is more oblong than in ~~the~~ typicus, and its height is half of the total length of the fish, caudal fin excluded. The nostrils, which is ^{about} ~~marked~~ with the horizontal raised lines, is as long as the head. The upper profile of the head is turned in front of the eyes and runs up to the dorsal fin at an

angle of about 55 degrees. The eyes are large circular and a little more than their own diameter apart.

The dorsal fin commences at a point a little behind the eyes, and extends over a base which is a little more than half the length of the fish. Its spiny rays are graduated upward, so that the fifth is six times taller than the first. The outline of the fin is strongly arched, deepest at the commencement of the articulated rays, where its depth equals a fourth of the total length of the fish. The anal fin is not quite so deep as the dorsal, nor so strongly arched in its outline. Its origin takes place opposite the third articulated ray of the dorsal fin, and the first spine is small, being one-third as tall as the second, which latter is a little shorter than the third. The pectorals are large, their length equalling the height of the dorsal fin. The caudal, ~~which comprises~~ is truncate, but when expanded exhibits a narrow bilobed margin.

The only specimen of this very rare fish, ^{which I have seen} now before me, is of a uniform deep black throughout, except its eyes and armature of the tail, which latter is white on the inside, light brown, with a bluish external margin.

Length $7\frac{1}{2}$ inches.

Habitat: Society Isls.

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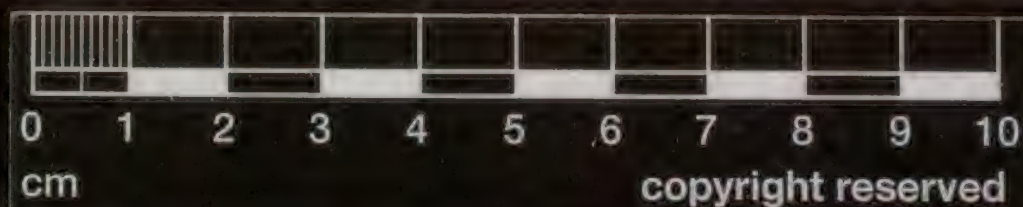
Acanthurus stigmatopterus





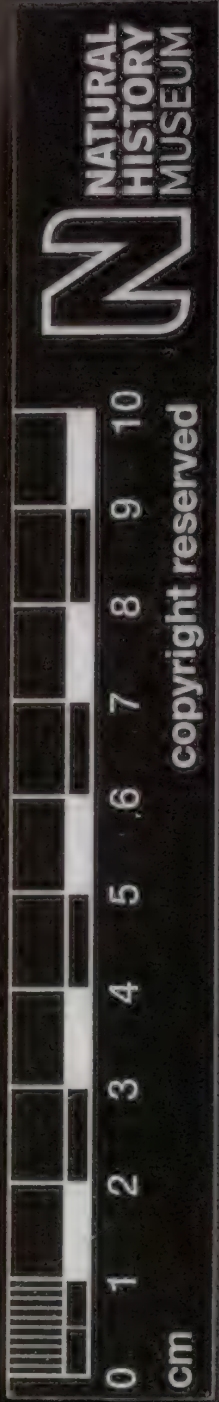
Acanthurus flavescens

162



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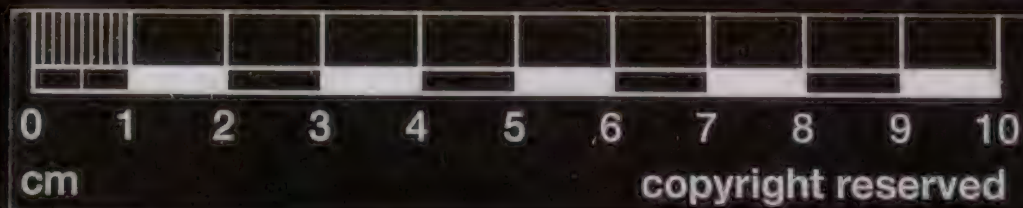
Mel. mearnsi





153

Acanthurus flavescens

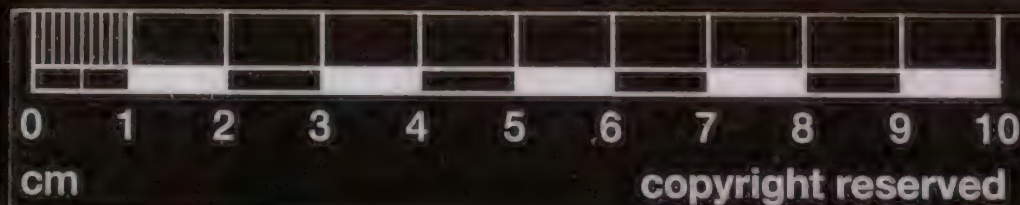


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Acanthurus rostratus

*In situ in the
Museum of
Natural History*



Vaseus No 436

D. 629; A. 2-29; V. 5; P. 16; L. 3, 1, 4, 2, 1, 3

An example of this species now before me, measures 18 inches in total length, of which the head comprises a little less than ~~than~~ a fourth. The general outline is oblong-ovate and the greatest depth of the body which is over the origin of the anal fin, equals about half the distance between the end of the snout and the termination of the dorsal fin. The snout is short, pyramidal in shape, its upper profile from the lips to the knob or horn is rectilinear, rising at an angle of about 45°. The eye is slightly oval in shape, inserted nearly on a horizontal line with the frontal knob, which latter is straight, slightly descending, rather slender and in length equals one and a half diameter of the eye. The profile from the top of the horn to the origin of the dorsal fin, is concave. The canal blades are strongly developed, and curved anteriorly.

For shape of fins see colored drawing.

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Color olivaceous or olivaceous-green,
passing into olive yellow beneath. A
violet patch over the pectorals, fringed
with whitish. Caudal knob orange and
the ornament steel blue. Sides yellowish
clouded with light brown. The dorsal
and anal fins are alternately striped
with pale yellow and steel-blue, the
stripes curving obliquely posteriorly. The
caudal is olive green. Ventrals olive yellow.
Pectorals olive.

The dorsal and anal are edged with
blue.

Habit - Sundevich Is.

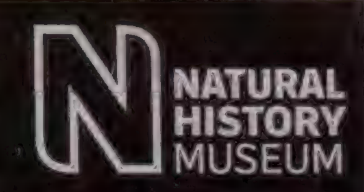
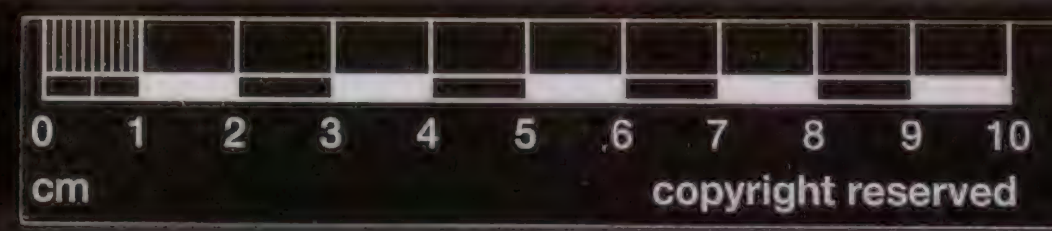
Native name Kala. The caudal
filaments, ~~and~~ blades, and knob are only
developed in adults.



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Nasus unicornis



Parus No 469

166

D. 628; A. 2-24; V. 1-3; P. 15; C. 1, 4, 4, 1.

The depth of the body at the origin of the anal fin, equals half the distance between the end of the snout and the hinder termination of the base of the dorsal fin. The head comprises nearly a fifth of the fish, and the horn-like protuberance is oblong, and about equal in length to the diameter of the eye, and situated almost in front of the latter organs. The eyes are sub-circular and their diameter is nearly one-third the length of the head. The ornament of the tail is small.

The dorsal fin together with the anal gradually tapers away posteriorly, the latter commencing opposite to the fourth dorsal spine. The caudal is slightly emarginate.

Color bluish slate with pale clouds. Irides pale brown, with dark brown shades. The dorsal fin is brownish slate, the anal of a paler hue, and the caudal is dark slate with a violaceous tinge on basal third and greenish slate posteriorly. Ventrals mottled

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2

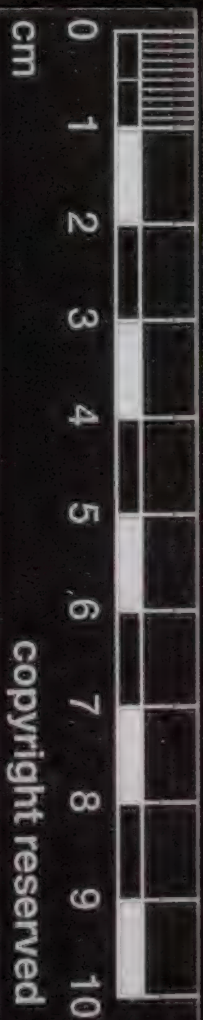


with light and dark slate. Pectoral
colorless.

Length 15 inches.

Hab. Kingsmill Is.

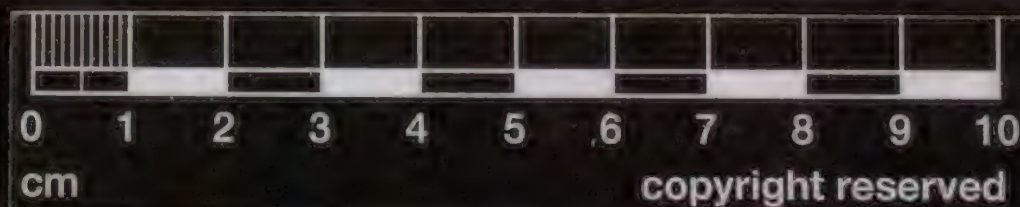
The drawing and description
are from a specimen 10 in length.





Nasus brevirostris

Nasus brevirostris



N NATURAL
HISTORY
MUSEUM

Vaseus No 475

D. 6-28; A. 2-27; V. 1-3; P. 15; C. 17-71.

This species, in color closely resembles No 474, but the general contour of the head is quite different. The markings are more remote, and consist of small round spots on the head and the upper and lower part of the body. The middle portion of the latter is decorated by irregular shaped oblong spots larger than those above or beneath. In every other respect the two species are alike in color.

This species is not quite so deep as No 474, and the caudal is concavely emarginate, the upper angle more prolonged than the lower one. The dorsal and anal are less developed, and the eye smaller. The upper profile of the head rises from the lips in a nearly vertical line, for about half the diameter of the eye in height, whence it suddenly bulges anteriorly, forming a rounded protuberance, whence the profile rises in a nearly straight line, at an angle of about 40° to the dorsal fin.

NATURAL
HISTORY
MUSEUM

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Length 9 inches

Hab. Kingsmill Is.

cm

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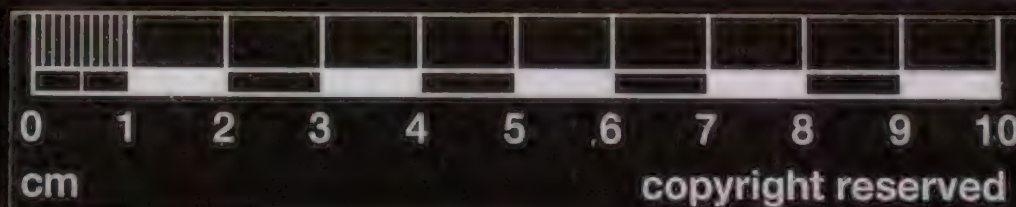
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475

167



Naseus brevirostris



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HISTORY
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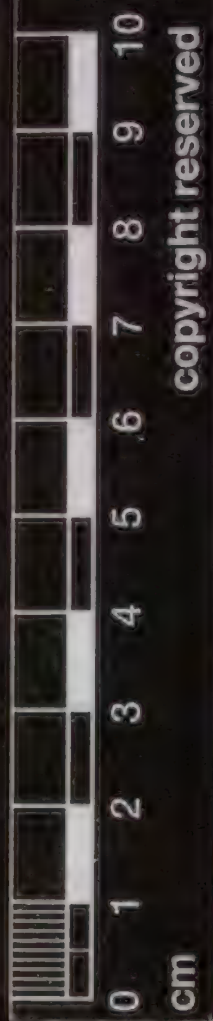
Stenotomus
Stenotomus

D. 6-26; A. 2-24; V. 1-3; P. 18; C. 3, 1, 2, 1, 1, 1.
 A specimen of this species, measuring 8 inches in total length, was obtained at Elton, one of the Caroline Is. There was not the least appearance of any preopercular protuberance, and the caudal emargination was rudimentary or very small. The depth of the body above the origin of the anal fin equaled half the distance between the end of the snout and the hinder termination of the dorsal fin, or a little more than a third of the total length of the fish. The head comprises about a fourth of the entire length, caudal excluded. The upper profile of the head is rather prominently arched. The eye is large, nearly circular, and about one-third the length of the head in diameter.

Both dorsal and anal are deep, gently arched, the latter commencing opposite the fifth dorsal spine. The caudal is emarginate and the upper angle considerably prolonged.

The ground color is grayish slate becoming paler beneath, and rather profusely marked by small darker and spot

NATURAL
HISTORY
MUSEUM



of a slate blue color, the spots remote
on the head and breast. Sides light
brown, varied with dark brown. The dorsal
and anal fins are yellowish brown,
edged with blue, and the caudal is
the same hue as the body, except a tinge
of violet or blue. Pectorals light brown. The
ventrals mottled with yellow and brown.



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NATURAL
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MUSEUM

Plate 81 (*Nareus vlamingii*)

Ground colour darker than in Garrett's 474,
in fact a brownish-violet; fins nearly black;
the blue of the spots of a purer tint; the
stripes on the fins to be drawn from the
specimen.

NATURAL
HISTORY
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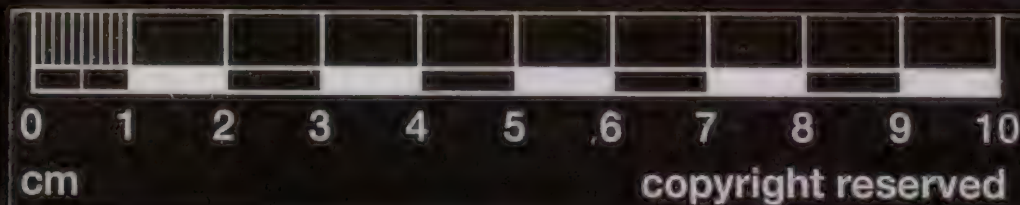
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474

163



Nasus flamingii



N NATURAL
HISTORY
MUSEUM

Prionurus conus, Lesson

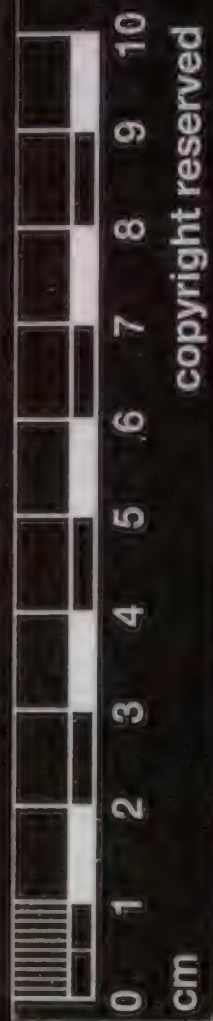
Prionurus conus, Lesson, Voy. Coquille, Vol. 2, p. 101.

B. 3; D. 6-30; A. 2-30; V. 1-5; I. 16; C. 4, 1, 2, 1, 4.

The upper line of profile rises from the snout up to the dorsal fin at an angle of about 40° and is slightly gibbous upward and forward of the eyes. The upper and lower profiles of the body are nearly similar, both slightly in this proportion to the tail. The greatest depth which is beneath the spiny portion of the dorsal, is nearly a third of the total length, which latter as compared to the length of the head is as nine to two. The large eyes are sub-circular and are situated three times their diameter upward and backward from the end of the snout. The muzzle is slightly prominent.

The dorsal fin commences just above the base of the pectorals, and passes over a base a little more than half the length of the fish. The whole fish gradually tapers posteriorly, presenting a slightly arched outline, and the first spine is one-fifth the length of the base of the fin. The spines occupy about one-fourth of the fin, and the articulated rays are bifid. The anal fin is a little longer than the soft part of the dorsal and resembles that fin in shape. The ventrals are acutely pointed, and their tips reach posteriorly as far as the second anal spine. The

NATURAL
HISTORY
MUSEUM



Two first articulated rays are bifid
and the third undivided. The pectorals
are one-third as long as the anal base.
The caudal is as long as the head.

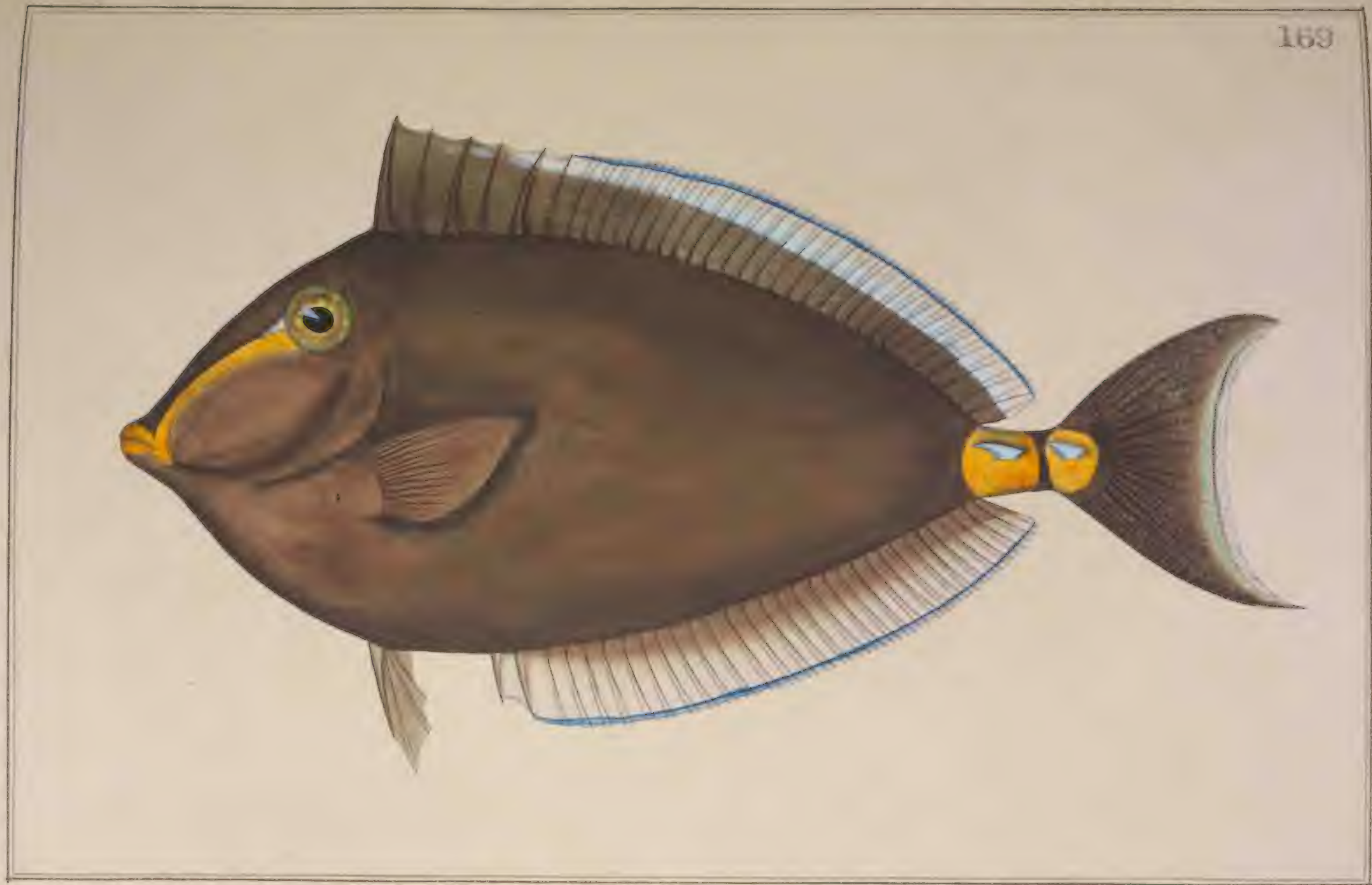
Color blackish brown. The lips,
a stripe extending from the eye down
to the angle of the mouth, and two large
spots on the tail, bright orange, the
two latter enclosing the spine. Gills
varied with brown and yellow. All the
fins except the outer portions of the ver-
tical ones, blackish-brown, the upper
part of the soft dorsal and lower part
of the anal column both with a narrow
intramarginal light blue line; some-
times an additional black one, and the
middle of the soft dorsal shaded off
with bluish white. The concave border
of the caudal is margined with white
and sub-marginal green stripes, the two
separated by a narrow strip of ground color
of the fin.

Length 10 inches.

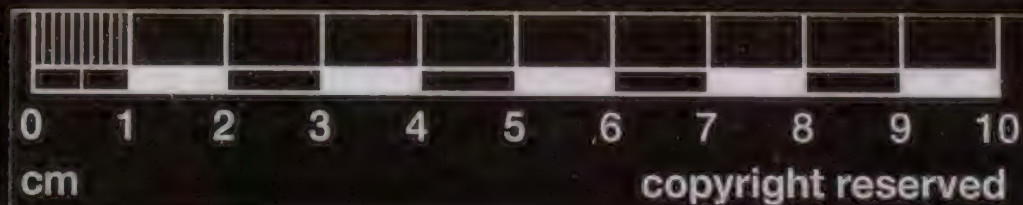
Hab. - All the Polynesian Is.
The native name at the Sandwich
Islands is "U-me-ume" or "Tahi To Ume".

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Nasus lituratus



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Stenopus No 476

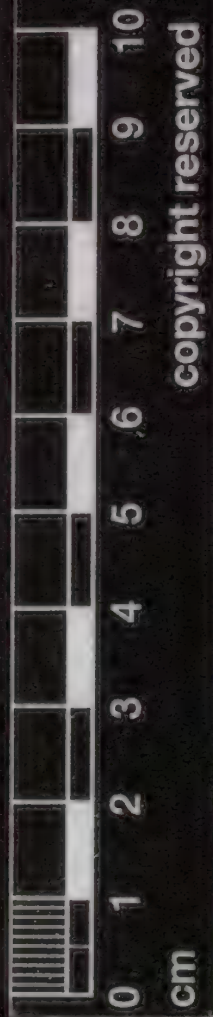
D. 6-30; A. 230; V. 1-3; P. 13; C. 5, 1, 7, 7, 1, 3.

In 1857 while collecting at the Bahiti group we obtained a single example of this stenopus, which measured 9 1/2 inches in total length. During several years collecting after the above mentioned date, we never succeeded in getting another specimen. The natives tell us it is excessively rare. The one obtained was subsequently lost, with the whole collecting, by the foundering of the ship in which they were shipped for Boston. Fortunately, I made a colored drawing and description when I obtained the specimen.

The fresh dead specimen was of a black color, fading into brownish on the lower third of the head and body. The latter portion with numerous oblong vertical small whitish spots. Ventrals straw yellow with dusky clouds. The dorsal and caudal blackish, the other fins light brown.

The general aspect of the fish is more slender than usual in the genus.

NATURAL
HISTORY
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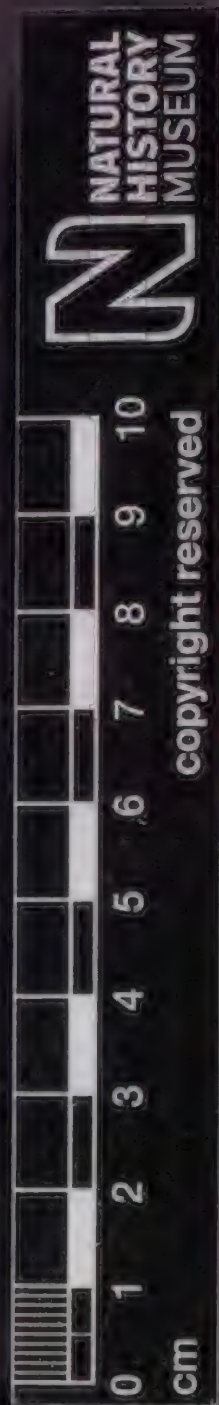


476
170

Aetideus
Vasus atratus, Gussak
Plate

Body formula D. 4/30, A. 2/30, V. 1/2, C. 2-4, G. 5-7-7-1-1-1.
Color black, becoming brownish in the flanks
and belly, where there are numerous, small, oblong, white,
spotted scales. Scales pale when color and clouded in the
body. The dorsal fin is shaded like the same color in
the part of the body from which they arise. The other
fins are pale brownish.

The Aetideus is much compressed and elongate
ovate in form. Above and beneath very similarly
arched, and both with a slight concave depression,
that on the dorsal is just behind the first dorsal spine,
and on the other behind the ventral spine. The profile
of the head between the horn and the dorsal fin
is gibbous and the lower line is convex and rapid
in its descent to the ventral. Immediately above,
just close to
the mouth is the horn, which is on the median line,
and is straight, horizontal, ^{and} equaling two diameters
two branches of the orbit in length. The mouth is
very small and each jaw is covered with a range
of small, even, curved acute teeth. The eye is large,
being twice its own diameter obliquely upward and
backward from the tip of the upper jaw. The lateral
line is nearly concentric with the curvature of
the back. The tail is slender.



The dorsal fin extends, from a vertical with the posterior border of the orbit, to within the diameter of the eye of the caudal. The upper margin is nearly parallel with the arch of the back, the spine is three times the diameter of the eye in length, which is one-third greater than its height. The spine is scabrous, and the front are concave behind. Nearly all the rays in the soft portion are bifid, two or three of the last have three branches, and the last two rays spring from a point.

The anal fin approaches quite near the vent and differs but little from the dorsal in form, and which it terminates.

The ventrals arise immediately below the pectorals and are about the same height as the dorsal. The spine is a little shorter than the succeeding ray the last of which is bound to the belly by a membrane.

The Pectorals are about the same height as the ventrals, and placed a little beneath the median line of the body.

The caudal fin is large, triangular, equal three and a half diameters of the eye in height and the posterior margin is notched centrally. Length, 9 inches 6 lines.

Habitat. Society Is.

Observations. We obtained a solitary specimen of this singular fish at the above location.



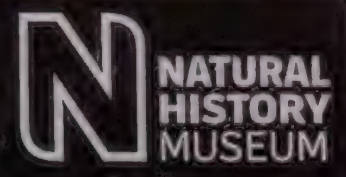
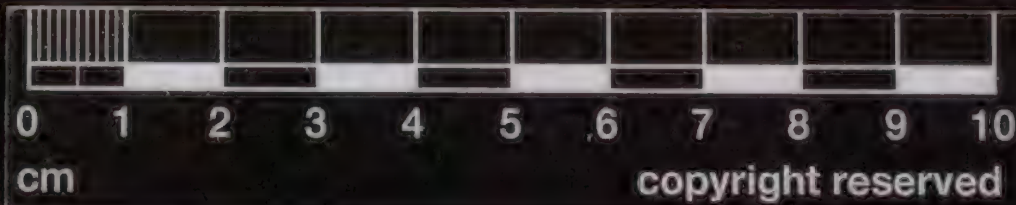
NATURAL
HISTORY
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170



Naseus sp.



Coris No 334

D. 6-31; A. 2-31; V. 13; P. 18; C. 41, 27, 14.

The general aspect of this species is ovate, strongly compressed, and the greatest depth is not quite half the total length, which latter is as compared to the head, nine to two. The upper profile of the head is strongly gibbous in front of the eyes, and the ascent from the snout to the dorsal fin is about 46° . The eyes are large, circular in shape and situated about midway between the first spine of the dorsal fin and the angle of the mouth.

The dorsal fin commences at a point just behind the eyes, and the first spine considerably overtops the second, whence they are gently graduated downward and backward. The soft portion is more than twice the length of the spines, and the rays are all unbranched, though some of the posterior ones exhibit indication of division. The anal fin commences beneath the fifth dorsal spine, and like the latter fin the anterior spine is the longest, and the soft rays the same as the fin above. The ventrals are small, inserted beneath the pectorals, their anterior ~~ray~~ spine is stout and followed by three unbranched rays. The pectorals are larger than the ventrals, and the caudal which is as long as the head is slightly emarginate.

Color steel-blue, or copper

NATURAL
HISTORY
MUSEUM

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dark along the back and head.
The upper half of the flanks is
marked with three or four horizontal
rows of dark spots, the upper the larger,
and gradually become smaller and
obscure beneath. Sometimes one or
two small lead-colored spots mark
the top of the caudal trunk. Ventrals
silvery. Pectorals and caudal yellowish.
Ventrals with a dusky tinge.
Dorsal blackish with a basal series
of pale spots. Anal slightly dusky.
Sometimes traversed by a light
bluish white band.

Length 3 inches.

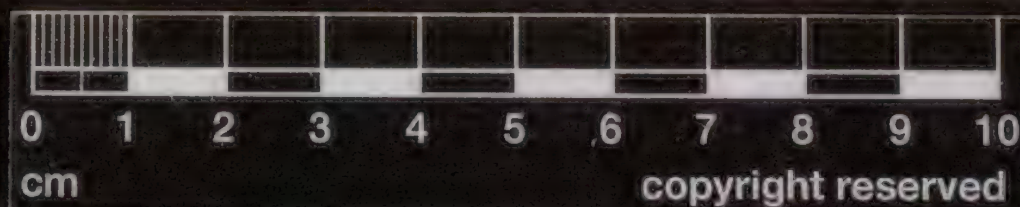
Hab. Society Is.



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Nareus sp.

334
171



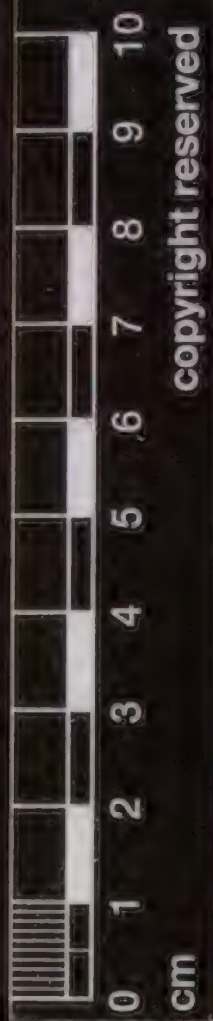
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HISTORY
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Curaux? No 374.

D. 7; A. 8-10/7; S. 2-10/7; P. 18; C. 5; 1/4, 2, 1, 4.

The general aspect of this species is fusiform, compressed, and the trunk of the caudal is much wider than deep. Scales minute. The upper and lower outlines from the snout to the soft dorsal and anal fins are regularly convex-linear, the lower arch a trifle greater than the upper, and from the origin of the two above mentioned fins the fish tapers away to the tail so that the outlines are rectilinear. The greatest depth of the body which is at the commencement of the soft dorsal fin is about two-tenths of the total length, and the greatest thickness is half of the above mentioned depth. The lateral line is strongly arched over the pectorals, and nearly its whole length incised with large spiny plates, of which we enumerate fifty, which extend anteriorly as far as the first dorsal; they are very deep, occupying nearly a third of the depth of the body between the soft dorsal and anal fins. Two little oblique cutaneous crests on each side of the tail. Head scaled on the occipital region, and comprises a fifth of the fish. The large eyes are sub-circular, their greatest diameter entering four times in the length of the head and more in advance of their own orbit. The mouth is oblique, the lower jaw the longer and both armed with a band of conic-like teeth. The hinder tip of the maxillary reaches posteriorly as far as a vertical passing

NATURAL
HISTORY
MUSEUM



through the center of the eye. The two vertically linear nasal openings are contiguous and situated rather nearer to the eye than the end of the snout. The large round preopercle margin is striated.

The first dorsal is a little longer than deep, the first erect ray (the first one being horizontal) is less than half as tall as the second, which latter is slightly overtopped by the third the highest, whereon they rapidly decrease posteriorly, the two last very small and of nearly equal size. The soft dorsal, which overtakes the first, commences midway between the end of the snout and the last finlet, which latter are seven in number. The triangular anterior portion is in height equal to the spiny dorsal base.

The anal fin, which is shaped like the fin above, is broken up into seven finlets, and takes its origin nearly half the length of the head posterior to the commencement of the soft dorsal.

The ventrals when closely appressed to the belly reaches half way to the small spiny anal fin.

The pectorals extend a little posterior to the origin of the soft anal fin, and the caudal which is profoundly forked is nearly as long as the head, and the lobes are elongate triangular and pointed.

The upper two-thirds of the fish is light olivaceous green with a metallic gloss. The lower parts like polished silver with iridescent reflections.



NATURAL
HISTORY
MUSEUM

in certain light, and black spot marks
the opercle. Venter silvery with a slight
tinge of brown. Dorsals with a slight
dusky tinge, the caudal silvery grey,
shaded with blackish on the posterior
margin. The anal and ventrals nearly col-
ored, and the pectorals silvery green
above.

Length 12 inches

Hab. - Samoa Is.

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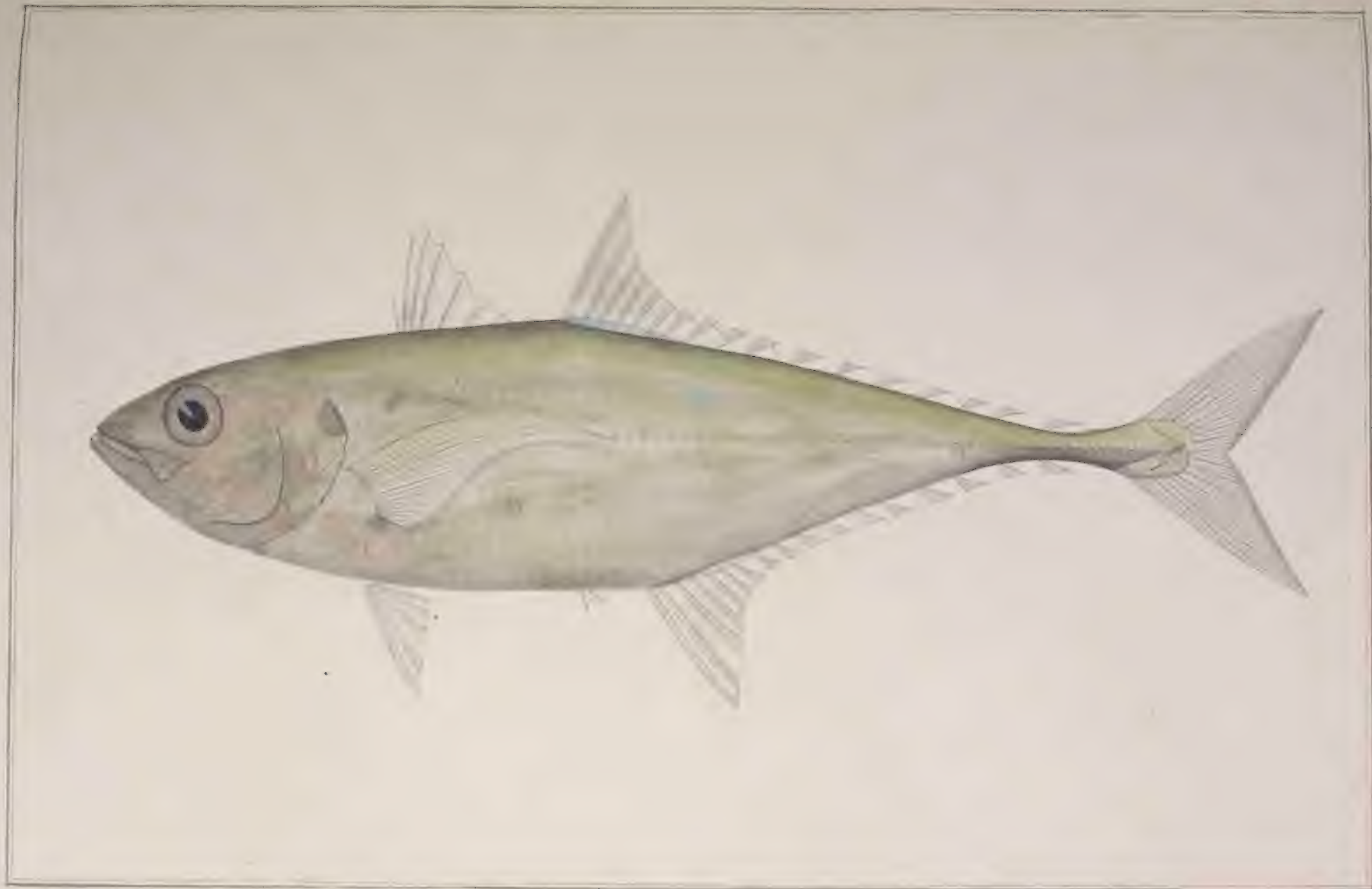
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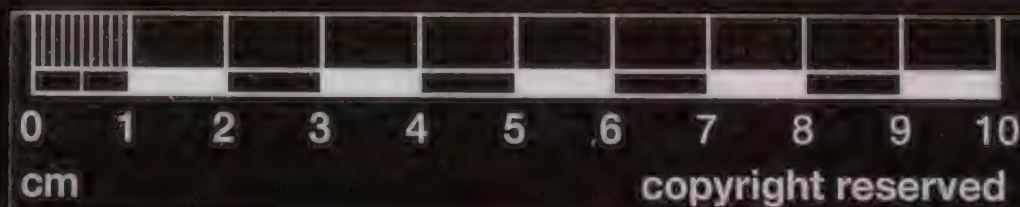
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172

Caranx rottleri

N NATURAL
HISTORY
MUSEUM

Curanx pinnulatus, Eyd. et Soul.Curanx pinnulatus, Eyd. et Soul., Zool. Voy.

Bonite, Vol. 1, p. 165, pl. 3, fig. 4.

B. 5; D. 5, 36+1; A. 2-27+1; V. 6; P. 21; C. 4, 1, 3, 7, 1, 3.

The greatest depth of the body, which is between the two dorsals, is one-fifth of the total length, caudal excluded. The thickness at the same place equals two-thirds of the above mentioned depth. The upper and lower outlines are quite similar, both gently arched from the snout to the tail. The head constitutes a triple more than a fourth of the fish, caudal excluded. Eyes large, sub-circular, their diameter ^{comprising} nearly a fourth of the length of the head. Nostrils contiguous, elliptical, situated near the line of profile, and rather nearer the eye than the end of the snout. The lower jaw is a triple the longer, and the maxillary extends backwards as far as a vertical line passing midway between the nostrils and the eye. Jaws edentate. The upper portion of the snout in advance of the eye, and the preopercle, tinted. The latter bone is quite prominent on its round hinder margin. The subopercle presents a vertical concave hinder margin.

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The first dorsal is sub-triangular, its height less than the length of its base, and the third ray is the tallest. The second dorsal commences a little more than the diameter of the eye posterior to the first fin. Its anterior portion is triangularly pointed, not so high as the preceding fin, and its posterior portion is very fragile. Between its hinder termination and the caudal is a small finlet, and a corresponding one beneath. The anal is not quite so deep as the soft dorsal, and commences opposite to the ninth ray in that fin. The length of the ventral equals the greatest height of the soft dorsal. The pectorals, which are nearly twice the length of the ventrals, are sub-falciform.

Color: the upper half of the body is steel-blue, uncertain lights reflecting light green and brilliant metallic blue. Lower parts silvery with iridescent reflections. Snout tipped with slate. Sides silvery, clouded with brown. Caudal light olive. All the other fins nearly colorless.

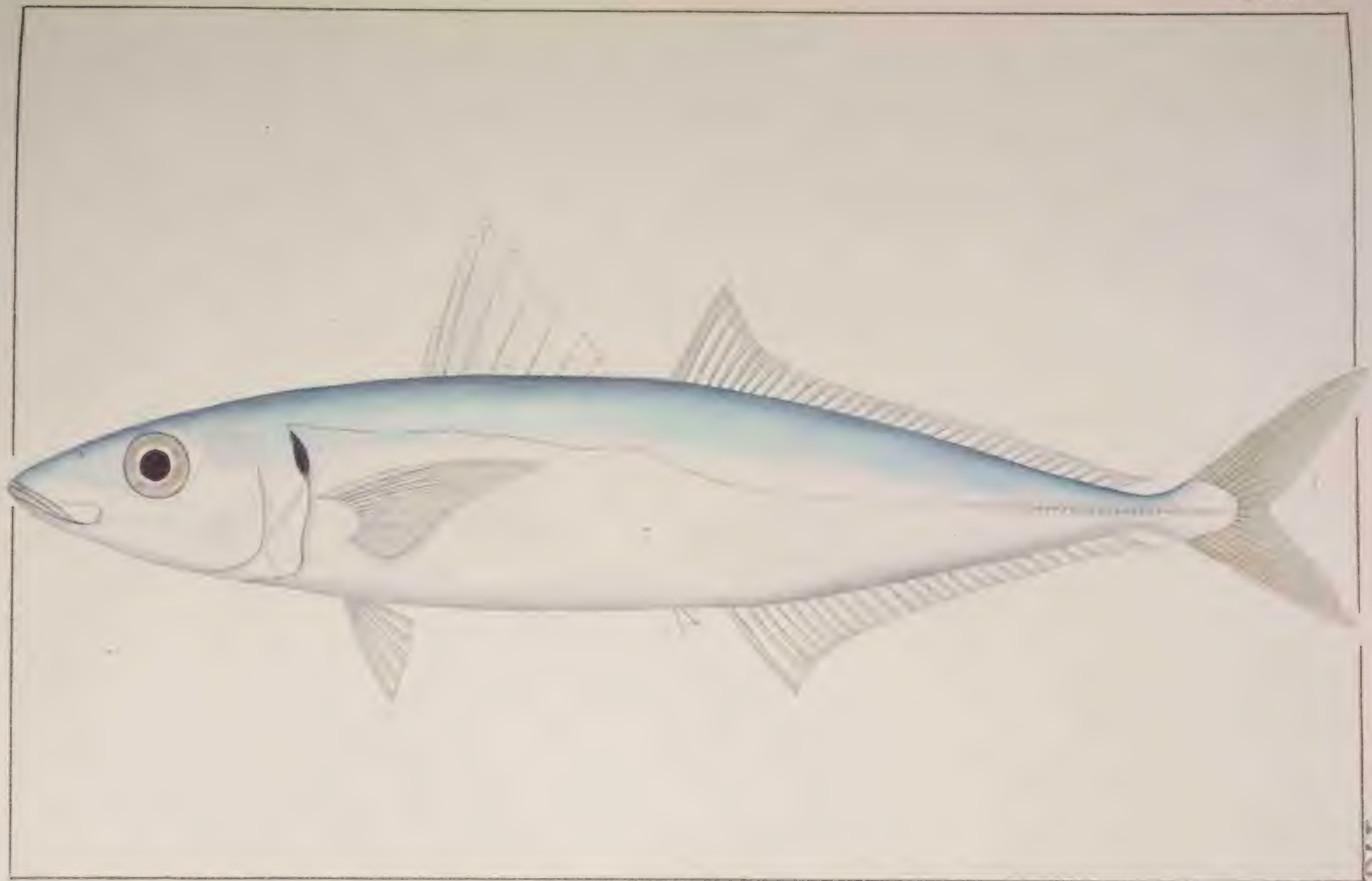
Length, 10 inches.

Habitat. Bonin Is., Sandwich Is., Society Is., Line Is.

Remarks. A migrating species, visiting the islands at certain periods in vast shoals, and are caught by thousands by the natives.

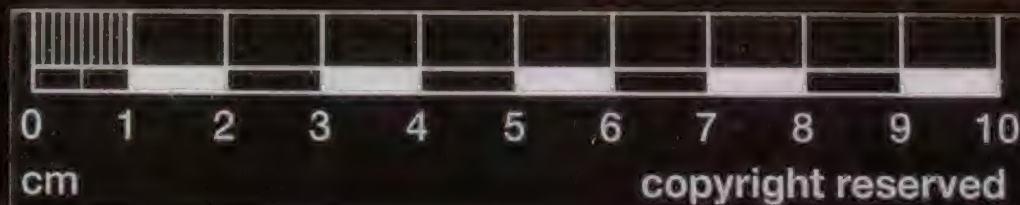
NATURAL
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173

Caranx sanctae-helenae



N NATURAL
HISTORY
MUSEUM

Crurax ~~centurio~~, ~~Günther~~

B. 7; D. 8-1/26; A. 2-1/22; K. 1/3; P. 20; C. 4, 1, 7, 7, 1, 3.

The general aspect of this species is fusiform, similarly arched above and beneath. The greatest depth of the body equals the length of the head or nearly a fourth of the total length. The scales are small and easily dislodged. The lateral line, which contains about one hundred scales, curves downwards, the posterior half which follows the median line is armed with small spiny plates. The eyes are very large, obliquely oval, their greatest diameter equalling one third the length of the head, and are situated rather nearer the end of the snout than the hinder corner of the opercle. The posterior extremity of the maxillary touches a vertical line cutting the anterior third of the eye just upward and forward of the orbit are the nostrils, which are of nearly the same size, approximating and vertically oblong. The mouth has a deep gap, the lower jaw the longer, and both armed with bands of fine teeth. The large preoperculum is rounded on its border.

The first dorsal fin is composed of eight ^{eleven} spiny rays, not commencing the horizontal origin front, and commences at a point about half its own height posterior to the opercle angle. Its point

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HISTORY
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ray is a little more than half as tall as the third which is the highest, and the others rapidly diminishing in altitude to the last which is very small. The second dorsal which approximates the first, is not so tall as that fin, and commences rather nearer to the eye than the base of the caudal fin. Its anterior portion is produced into a triangular lobe, and the remainder of the fin is very low. The anal fin is a little shorter, and of the same shape as the fin above with which it corresponds. The ventrals are a trifle deeper than the first dorsal, inserted just behind the pectorals, and their tips reach half way to the soft anal fin. The large pectorals are one-fifth the total length of the fish, and pointed. The caudal is strongly forked, the lobes elongate triangular and pointed.

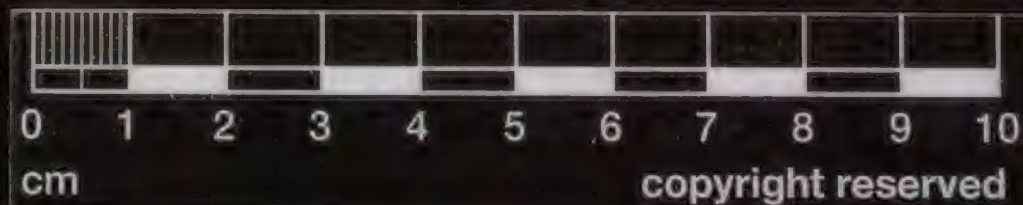
Color brilliant silvery, with an iridescent gloss, white beneath the belly, and deep olive green above, which in certain lights reflects indigo blue, or light green tinge in the region of the eyes which latter are clouded with dark brown. All the fins except the ventrals are tinged more or less with light olive.

Length, 1 foot.

Habitat. Sandwich Isls, Society Isls. Native name at both locations "Hakudi". Their habits are the same as Carex ~~fish~~ fish.



F21

Caranx crumenophthalmus

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Carangus atratus, Garrett.
occasionalis, CV.

88

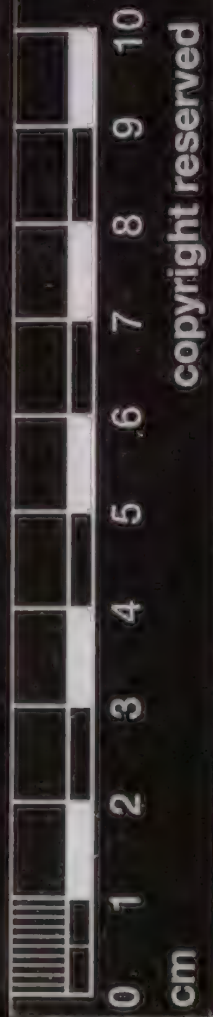
175

B. 6; D. 7-23; A. 2-14; V. 1-5; P. 21; C. 4, 1, 2, 2, 1, 5.

The greatest depth of the body, which is at the origin of the second dorsal, is just one third of the total length. The head, which comprises nearly a fourth of the fish, presents a rather deep concave depression in front of the eyes. The hinder tip of the maxillary reaches a vertical line passing through the center of the eye. Teeth conical, acute, slightly recurved, and disposed in a single range; larger in the lower jaw and more numerous than in the upper. Eye large, oval, its greatest diameter entering five times in the length of the head, and twice between its anterior limit and the end of the lower jaw. The cheeks, upper half of the interopercle, tympanic region and occiput, scaled. Thirty one scaly plates may be enumerated in the lateral line.

The first dorsal is half as long as the second, its third ray tallest, being half the length of its own base. The anterior portion of the soft dorsal is prolonged into a long point which is nearly as long as its base, which latter is nearly the length of the fish. The anal is shorter in its base than the dorsal.

NATURAL
HISTORY
MUSEUM



Its height anteriorly is nearly two-thirds the length of its base. The forks of the caudal are wide, and nearly as long as the head.

Color deep dusky iron gray, with an ochraceous-black tinge along the upper part, sometimes nearly black. Ventrals more or less yellow. First dorsal clouded with dusky on a steel-blue ground. The other vertical fins blackish, the soft dorsal and anal greenish along their base. Pectorals black, becoming yellow posteriorly. Ventrals steel-blue, more or less mottled with dusky.

Length, 22 inches.

Habitat.—Society Islands.

Remarks.—A rare species, called by the natives "Pohare ruhi". It may be readily determined by its blackish color, high dorsal and strongly arched forehead.

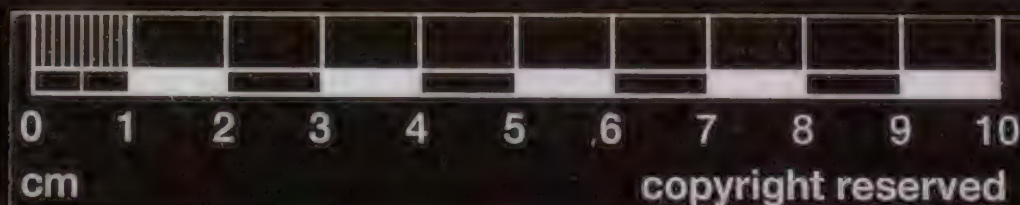
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Caranx ascensionis

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Caranx ascensionis**N** NATURAL
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MUSEUM

Coronula stellata, Eyd et Leach.

Zool. Voy. Bonite, Vol. 1, pt. 162, Pl. 3, fig. 2

D. 7, A. 24, V. 21, H. 8, P. 21, C. 5, 1, 2, 3, 4.

The greatest depth of the body equal the length of the soft dorsal base, or nearly two-sevenths of the entire length of the fish. The upper line of profile from the snout to the soft dorsal fin exhibits a very symmetrically carpaline curve, rising up to the snout at an angle of about 50° , whence it falls to 10° in its course to the above mentioned fin, where it descends to the tail at an angle of 25° . From the throat to the soft anal fin the profile is nearly rectilinear, and descends at an angle of nearly 10° and rises up to the tail at about 25° . The horizontal portion of the lateral line is occupied by about 58 plates. The head is deeper than long and comprises two-ninths of the total length of the fish. The snout extends back to a vertical line cutting the middle third of the eye. The teeth are irregular, small, slightly curved and an inner range of card-like ones. Eyes rather large, sub-circular and as compared to the length of the head, two to nine.

The first dorsal fin is longer than deep, the third ray tallest, which is twice the height of the first, and slightly over tops the second, the others rapidly diminishing posteriorly. The soft dorsal commences a trifle behind the first, and its anterior portion is elevated into a sub-triangular lobe, which is twice as tall

over the first dorsal and more than half as long as its own base. The anal fin is a little shorter and lower than the opposite fin. The ventrals overlap the body and are nearly half as long as the head. The pectorals are as long as the anal base or more than a fourth the length of the fish. The caudal fork is longer than the head and tapers to acute points.

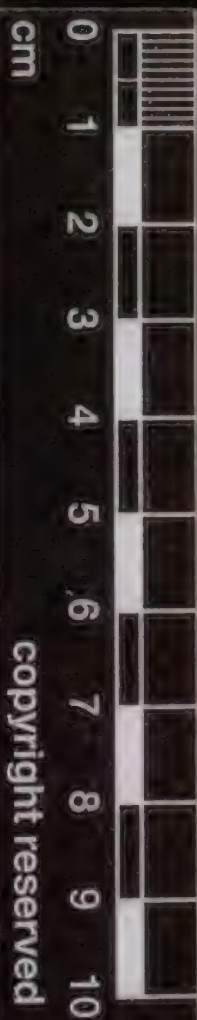
Color - brilliant silvery with an iridescent gloss, and when full grown become darker and maculated with small spots. Back bluish steel, belly white and the top of the head olive green. Sides whitish silver. The upper half of the pectorals pale yellow, the lower half together with all the other fins pale steel blue, with deeper shades on the tips of the caudal and anterior portions of the soft dorsal and anal fins.

Length 2 to 4 feet.

Hab. - All the Polynesian Is.

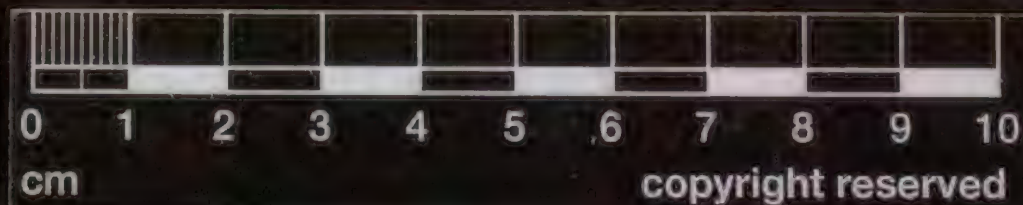
Our drawing and description are from a specimen 12 inches in length. The figure in the Zool. Bonate is excellent.

Should be separated into a distinct genus from the fusiform species.





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Caranx melampygus

N NATURAL
HISTORY
MUSEUM

hemigrammichthys = ferdau.

Curanx? No 91

177

D. 7; P. 2+33; A. 1+26; V. 15; R. 22; C. 1, 4, 7, 1, 4.

The greatest depth is equal to the length of the base of the anal fin or about two-sevenths of the total length of the fish. The head comprises about one-fifth of the total length, its upper line of profile precipitately rounded, and rises up to the nape at an angle of about 55° , whence it ascends up to the soft dorsal at an angle of about 15° , then falling 25° in the descent to the tail. The lower line of profile from the throat to the anal fin is nearly straight, falling at an angle of only about 5° to that fin, whence it continues to rise to the tail at an angle of 30° . The eyes are large, sub-circular, situated so that the median line of the body intersects their upper half, and their greatest diameter equals one-fourth the length of the head. The hinder tip of the maxillary reaches posteriorly as far as a vertical cutting the anterior third of the eye.

The dorsal fin commences a little nearer to the base of the caudal than the end of the snout, and passes over a base which is a trifle more than one-third the length of the whole fish. Its anterior fourth rises into a high triangular lobe, and a similar one marks the anal fin. The small ventrals overlap the vent, but do not reach quite half way from their base to the anal fin. The pectorals are very slender, and are nearly one-third the

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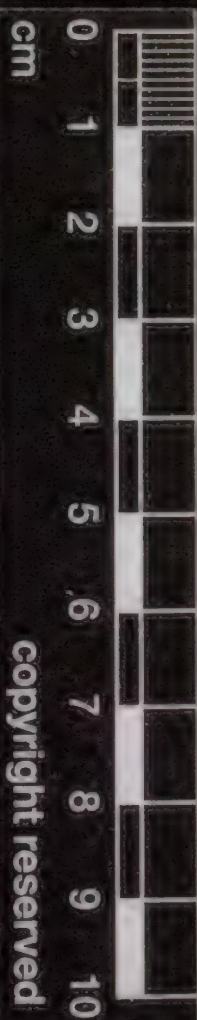
total length of the fish. The caudal equals a third of the fish and the lobes are acuminate, pointed.

Color greyish-silver with a violaceous gloss, and in certain lights the upper half of the body exhibits several very faint vertical bars. Slight sea-green tinge on the dorsal region, and on the sides of the head, which latter is light bluish in advance of the eyes, and the lips are whitish. All the vertical fins are dusky-steel, and the lower margin of the anal whitish. The pectorals are colorless except a tinge of yellow on their basal portions, and the ventrals are whitish, tinged with steel blue.

Length 16 inches.

Hab. - Society Isls.

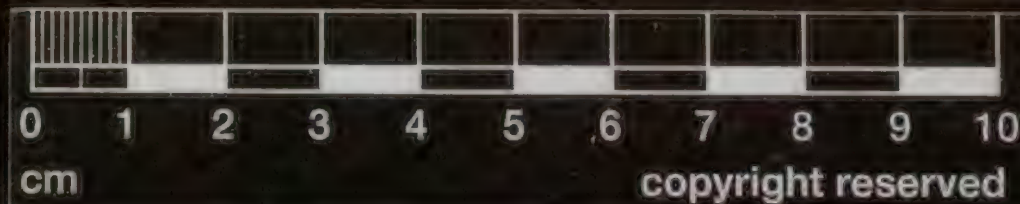
This species has no spiny dorsal or spiny anal.



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Caranx ferdau



Carnax? No 89

P. 7; D. 7-31; A. 26; L. 15; P. 25; V. 5, 4, 4, 4, 4.

The upper line of profile exhibits an arched outline from the end of the snout to the dorsal fin, having an ascent of about 45°. The lower outline is much more gently arched than the upper, and from the origin of the soft dorsal and anal the lines are nearly rectilinear and fall at an angle of about 25°. The greatest depth of the body is at the commencement of the soft dorsal fin, and equals two seventh of the total length. The head falls a little short of a fourth of the total length of the fish, and is as deep as long. The eyes are circular, their diameter entering five and a half times in the length of the head. The hinder limb of the maxillary extends to a vertical line cutting the anterior half of the eye.

The first dorsal fin commences at a point immediately over the base of the ventrals, the rays graduated either way from the third, and the last one is very minute. The soft dorsal and anal have their anterior portions drawn out into long acute points, the former fin commencing about midway between the end of the snout and the base of the caudal fin, and passing over a space nearly a third of the total length of the fish. The pectorals are as long as the base of the anal fin and the caudal equals the head in length.

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Color silvery with an iridescent
glow, and the flanks marked with
a few scattering small greenish
yellow spots with dark olivaceous
centers. The dorsal region is violaceous
slate, reflecting bluish silver, and
the belly is whitish silver. Muzzle
slate blue. Snout uniform with a
clouded olive ring. The caudal fin
is violaceous slate, becoming nearly
colorless posteriorly, sometimes dark
marginated, and the ventrals and first
dorsal are nearly colorless. The basal
portion of the pectorals are bluish
and the soft dorsal and anal are nearly
colorless except their prolonged portion
which is violaceous slate or blackish.

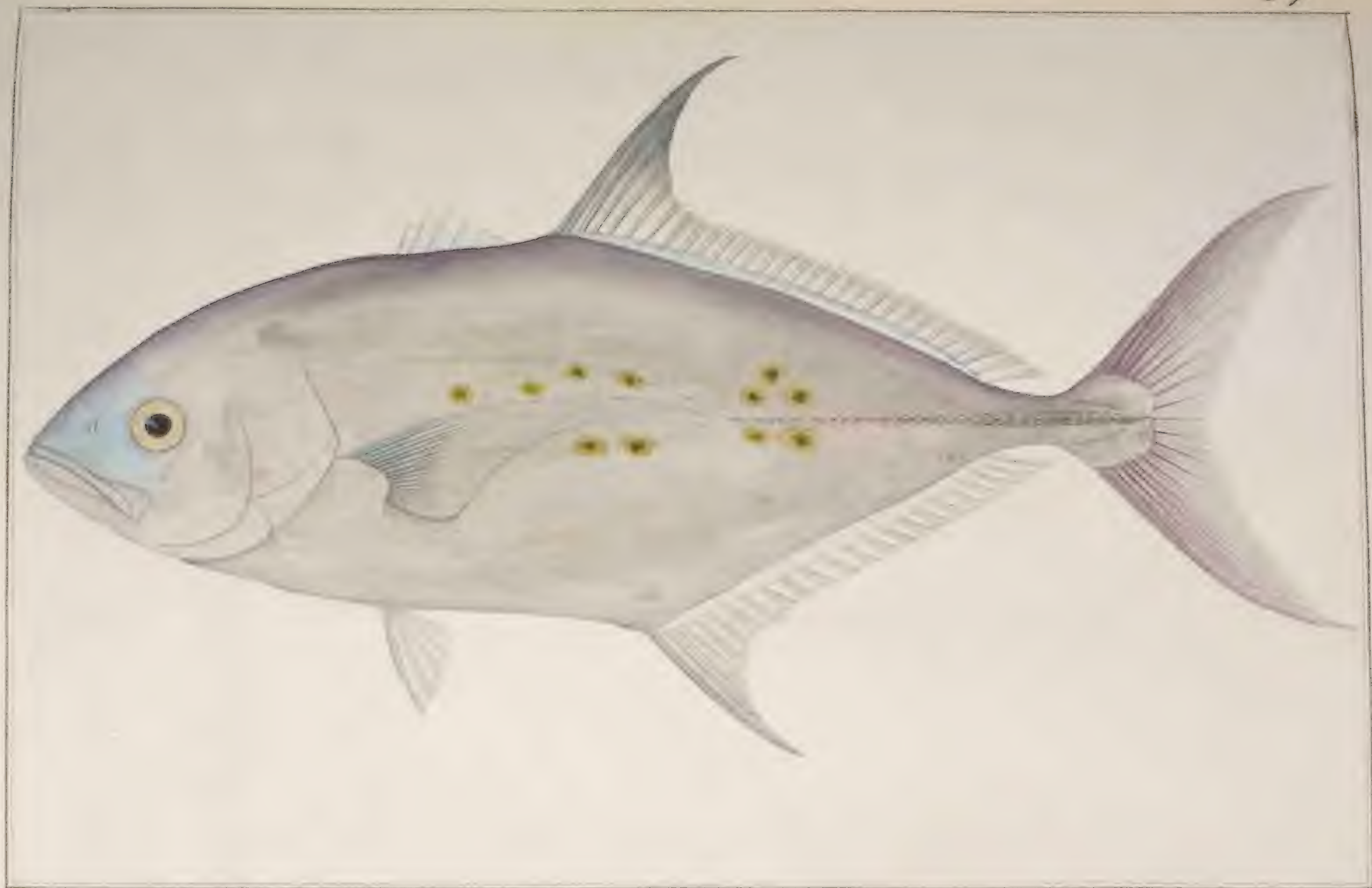
Length 16 inches.

Hab. - Sandwich Isl. Society Isl.
At the former location its native name
is Kahala.

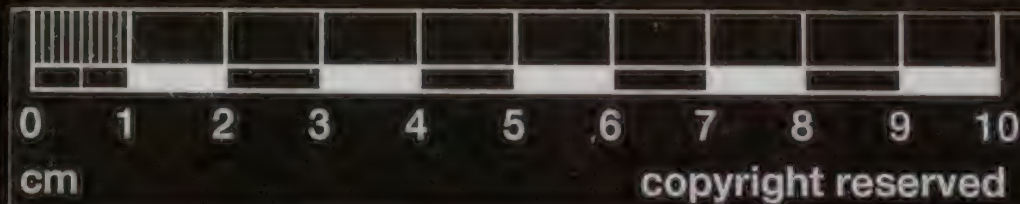
This species should be separated
from the typical *barax*. The spiny dorsal
is very small and the two spines in
front of the anal fin are rudimentary
and do not pierce the integuments.

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Caranx ferdau



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Caranx? No 367.

D. 7; A. 34; P. 27; V. 1-2; R. 22; C. 2, 1, 2, 1, 4.

This elegant shaped species has the upper line of profile from the snout to the second dorsal symmetrically arched, rising up to the nape at an angle of about 50° , whence it falls to about 20° but preserving its beautiful curvature up to the second dorsal fin, where the descent to the tail is about 30° . From the throat to the anal fin the profile falls in a nearly straight line nearly 10° , and then ascends at about 30° to the tail. The greatest depth of the body is not quite a third of the total length, and the head falls a little short of one fifth of the fish. The eyes are oval, their horizontal or greatest diameter entering four times in the length of the head. The posterior tip of the maxillary reaches back as far as the anterior border of the eye.

The first dorsal fin is small, much longer than deep, arched above and the third ray the tallest. The soft dorsal commences exactly midway between the end of the snout and the base of the caudal fin. Its anterior lobe is long, pointed, a little less than half as long as its own base.

The anal fin is shorter and the anterior lobe less prolonged than the fin above (no anterior spines).

The ventrals are half as long as the head and the long pectorals are as long as the anal fin. The caudal is about one-fourth as long

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as the entire fish and forked nearly to
its base.

Color silvery gray beautifully iridescent,
and in certain lights reflecting bluish,
particularly along the dorsal region. Ventrals
yellowish white, ventrals whitish and the
pectorals light steel blue. All the other fins
light steel blue, the soft dorsal lobe tipped
with yellow.

Length 9 inches.

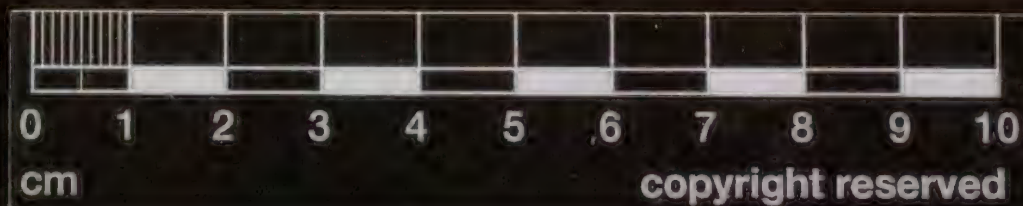
Hab. Society Isles.



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179

Caranx ferdau**N** NATURAL
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hemigrammopterus

Caranx? No 90

B. 7; D. 7-35; A. 27; V. 1-5; P. 21; L. 5, 1, 3, 2, 1, 4.

This species is considerably elevated at the origin of the soft dorsal, from whence the line of profile rather rapidly descends posteriorly, preserving a slight convexity, falling at an angle of about 40° . From the end of the snout the profile rises at an angle of 50° , up as far as the occipital region, whence it rather suddenly falls to 20° , and maintains that angle to the second dorsal in a nearly rectilinear line. The lower outline from the throat to the anal fin falls in a nearly straight line at an angle of 10° , and from the latter point it runs up to the tail at an angle of upward of 30° .

The distance between the origin of the ^{first} dorsal and anal equals one-third of the total length of the fish. The head is deeper than long and comprises about one-fifth of the entire length. The large eyes are sub-circular, their diameter one-fourth the length of the head. The jaws are even, and the hinder tip of the maxillary extends backward to a vertical line cutting the anterior third of the eye.

The first dorsal fin is small, arched, the third ray the tallest. The soft dorsal arises at a point about midway between the end of the snout and the base of the caudal fin. It extends over a base equal to the distance between its anterior end and the origin of the anal fin, or nearly one-third the total

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length of the fish. Its anterior portion is prolonged upward into a long slender sub-triangular lobe which is longer than the head. The anal fin has a similar but shorter anterior lobe. No spines in dorsal and anal fin

The ventrals when laid back overlap the vent and reach half way to the anal fin. The pectorals are falciform, slender on their outer halves and a little longer than the anal fin. The caudal is about two-sevenths of the total length of the fish, and forked nearly to its base, the lobes slender and acutely pointed.

Color grayish silver with an iridescent gloss. In certain lights may be observed several vertical darker bars which occupy the upper two thirds of the body. Irides silvery clouded with deep green. The first dorsal, ventrals and pectorals nearly colorless, the latter with a yellow tinge on their basal halves and the ventrals tipped with dusky steel. The caudal is olivaceous slate, posteriorly margined with blackish. The soft dorsal and part of the anal olive-yellow, the latter dark slate anteriorly and the lower margin white.

Length 13 inches

Hab. Society Isles

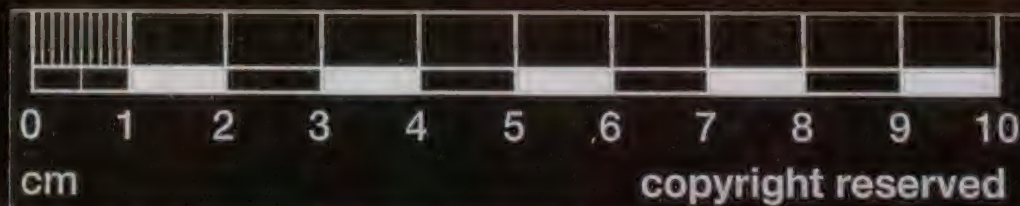
Native name *Omururu*

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Caranx ferdau



369

Carass gallas

181

Stuffer said fins were light yellow
but I doubt it. Garnett
Blepharis? Sandwichensis.

369

D.?, 19; A.?, 16; V. 1-5; P. 19; C. 5, 1, 8, 7, 1, 4.

Color above pale bluish-ash, which gradually fades into brilliant silver on the sides. Fins uncolored, with ~~the~~ blackish filaments and a large black spot on the anterior portion of the dorsal.

Form oblong-ovate, strongly compressed. Skin smooth, ~~slimy~~ and without any apparent scales. The profile of the head arises at an angle of about 45° in a curved line. The body tapers posteriorly, and both outlines are gently arched. The lateral line commences at the upper angle of the gill opening, and passes

which are much shorter, are gradually posteriorly so that the last is no more than one-third as long as the first. The remainder of the fin is very low.

The anal fin is very similar to the dorsal, with which fin it cotermi-
The three anterior ^{rays} are prolonged into filaments.

The ventrals are short, being less than half as tall as the pectorals.

The pectorals are long, pointed and palciiform.

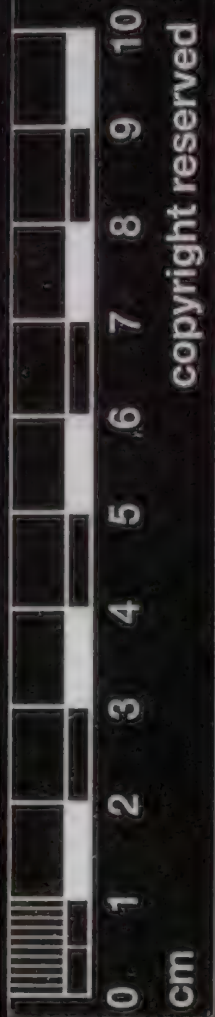
The caudal fin is deeply forked.

Length $9\frac{1}{2}$ inches.

Hab: Oahu.

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obliquely upwards, then descends rapidly in a curved course to about the middle of the distance between the opercular angle and the base of the caudal fin, then straight to the tail, having slight indication of armature at its termination. The head constitutes about one third of the fish, caudal fin excluded. The eye is very large, and placed about midway between the tip of the snout and the hinder opercular margin. Mouth oblique, gape moderate, and the teeth in both jaws are disposed in dense villiform bands.

The dorsal fin is long, and the seven anterior articulated rays are prolonged into long filaments; the ^{first} reaching far behind the caudal, and the others six which are much shorter, are graduated posteriorly so that the last is no more than one-third as long as the first. The remainder of the fin is very low.

The anal fin is very similar to the dorsal, with which fin it coterminates. The three anterior ^{rays} are prolonged into filaments.

The ventrals are short, being less than half as tall as the pectorals.

The pectorals are long, pointed, and palciiform.

The caudal fin. is deeply forked.

Length $9\frac{1}{2}$ inches

Hab: Vahr.

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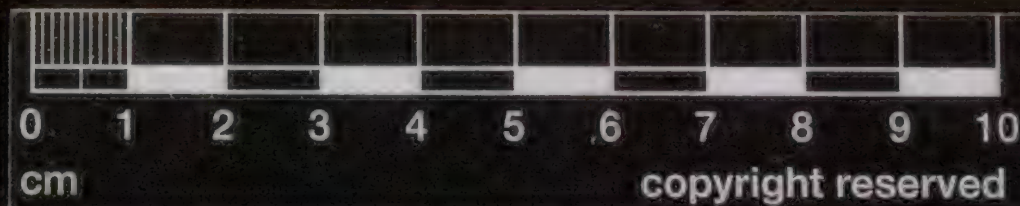
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Remarks. This rare fish was taken near Honolulu, and is now in the Collection of ^{Mr.} W. H. Pease, who kindly loaned ~~us~~ the specimen for description. Owing to the dissection of its various parts, it is impossible to determine with precision many of its specific characters; consequently, discrepancies may be found in the preceding description if compared with the living fish. Just in advance of the dorsal fin, in the dried specimen there appears to have been a range of several small free rays, and a similar one in front of the anal fin. It is with some hesitation that ^{we} refer it to the genus Blepharis which are said to have long ventrals, though otherwise agreeing with our fish.





Caranx gallus



Genus Seyras?

Body deep, strongly compressed, smooth, satiny, under the lens very minute scales visible. Head large, the upper profile conspicuously curved and precipitate. Eye large. Mouth rather small. Chin prominent. Gills subvent-like in both jaws. Branchial apparatus continuous under the throat. Lateral line arched over the pectorals and its posterior portion composed of small carinated scutellae which are accreted behind. Two little cutaneous crests on each side of the tail. Branchiostegal rays six. One dorsal fin, which together with the anal have small spines bristled in their anterior edge; both fins are low, except their anterior portions which are elevated and pointed and the anterior rays are prolonged into long filaments. Ventrals small. Pectorals sub-falciform. Ventrals bifurcate.

Seyras? 42 *Parax gallus*

B. 6; D. 7-12; A. 1-15; V. 1-5; P. 19; C. 5, 4, 4, 4.

The greatest depth of the body, which is at the origin of the dorsal fin, is just one half of the total length, caudal excluded. The upper and lower portions are very strongly compressed. The greatest thickness which is at the base of the head, equals one-fourth of the depth just alluded to. The upper line of profile commences at the chin and arises with a sudden curve over the head, thence with a gentle ascent in a nearly

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straight line to the origin of the dorsal fin whence it rapidly descends in a straight line to the base of the tail. The ventral outline from the chin to the ventral fin is deeply convex, from the latter fin to the anal slightly concave and posteriorly concave similar to the upper line. Both the upper and lower lines are dentated along the bases of the dorsal and anal fins. The caudal trunk is slender and gradually tapers to that fin. The head which is deeper than long, constitutes nearly the fourth of the total length of the fish. The teeth are disposed in broad bands. The hinder tip of the maxillary reaches a line that would touch the anterior margin of the pupil. The eye is large, subcircular in shape and its greatest diameter enters about four times in the length of the head. Nostrils just in advance of the orbit, both vertical, elliptical, the hinder one the larger.

The dorsal fin commences slightly anterior to the base of the caudal then the end of the snout. The seven anterior soft rays are very much prolonged into slender filaments which reach behind the caudal fin. The first one is large and compressed. The anal is quite similar to the dorsal in shape, but is a trifle shorter and has only one ray drawn in to a filament. The ventrals are sub-falciform, half as long as the head. The pectorals are long acuminate, pointed and reach far behind the ^{origin of the} caudal fin.

Color brilliant silvery and leaden gray along the dorsal region. Sides silvery. Fins nearly colorless. The dorsal filaments with wide black zone. Caudal leaden gray. Ventrals silvery. Length 22 inches. Hab. *Smith's Is.* Native name *Anavaru*. (Bass)

remora

Echeneis No. 398

This little *Echeneis* was found attached to a shark captured off the island of Huahine, one of the Society Island group. It was dead when received and the colors probably much faded, being dusky above and whitish beneath. When alive it was as I was told of a nearly uniform slate black.

The head comprises three thirds the of the total length, being broader than the body, and in the middle of the disk equals one-sixth of the entire length of the fish. The depth of the body at the origin of the dorsal fin as compared to the length of the fish is as one to nine. The disk comprises one-third of the total length and is twice as long as broad, and the laminae are 17 in number. The eyes are oval, their length entering 5/8 times in the length of the head, and are inserted equidistant between the end of the snout and the hinder margin of the gill covers. The muzzle as viewed from above is rounded and when seen in profile is pointed. The hinder end of the maxillary bone not quite reaching the anterior border of the eye. The teeth are disposed in a cane-like band, the external ones the larger.

Both dorsal and anal fins are similar in size and structure, opposite, and start from a point midway between the angle of the mouth and the end of the caudal fin. They

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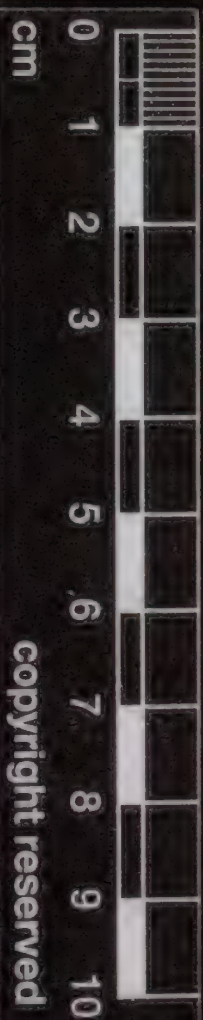
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gradually taper away posteriorly; the
four anterior rays are undivided, the
succeeding 4 or 5 bifid, the remainder simple.
The caudal is emarginate. The pectorals are
broad and the same length as the ventrals.

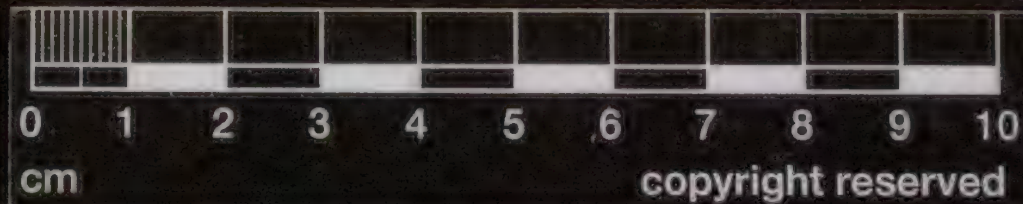
Length 5 inches.



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Caranx gallus



Genus Blepharis, Cuvier.

Body much deeper than long, somewhat rhomboidal in shape, strongly compressed, and covered by a soft satiny skin without any apparent scales. The upper profile of the head is precipitately arched. Eyes large. Mouth oblique curved. Both fine, disposed in a narrow ^{band} on either jaw. Lateral line strongly arched over the pectorals and its straight or posterior portion is mailed with small scaly spined plates. The spines of the first dorsal and anal hardly pierce the skin. The anterior rays of the second dorsal and anal prolonged into long thread-like filaments, and the anterior portion of both fins is much deeper than the posterior. Caudal forked. Ventrals long and pointed. Pectorals large, sub-falciform.

*Carassius ciliaris*Blepharis tentibetibe, Garrett

B. 5; D. 7-19; St. 3-16; V. 15; P. 14; C. 2, 1, 2, 2, 2.

The head constitutes one-third of the fish, caudal excluded. The large eyes are sub-circular in shape, their greatest diameter entering two times and one-third in the length of the head. The broader tip of

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the maxillary reaches a vertical passing just in advance of the center of the eyes. The greatest depth of the body is about equal to the distance between the end of the snout and the hinder termination of the dorsal fin.

The seven anterior rays of the second dorsal, and the first five of the anal are prolonged into slender filaments the anterior ones of which are longer than the fish.

Color brilliant silver, passing into steel blue above, and the upper half of the body marked with five obsolete vertical bars of a deeper steel blue. The outer half of the ventral, and the anterior portions of the dorsal and anal, blackish. The other fins colorless.

Length, 5 inches.

Habitat.—Kingsmill Is.

Vernacular name "Tentibetibi".

Remarks.—We obtained three specimens of this species at the above location. When compared with Blepharis capillaris, Nobis, the body is not so deep, the pectoral longer and the ventral are broader. The former has one more filamentous ray in each fin.

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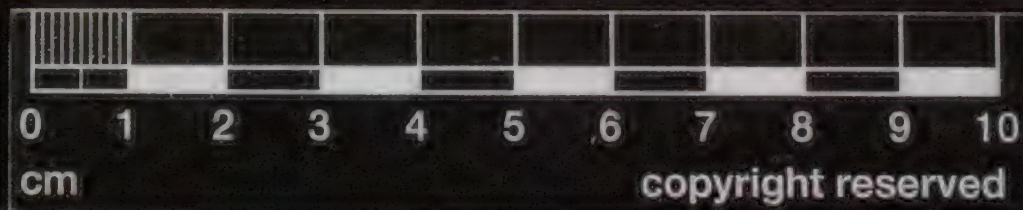
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Caranx ciliaris

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Blepharis fasciatus, Gantt.

D. 1-18; A. 3-15; V. 6; P. 19; C. 7, 1, 8, 7, 1, 6.

The greatest depth of the body equals the entire length of the fish, excluding the caudal fin in the measurement. The head, which is very precipitate, comprises one-third of the total length. A vertical line from the hinder corner of the maxillary bones touches the anterior limb of the orbit. The diameter of the eyes equals one-third the length of the head.

The six anterior soft rays of the dorsal are prolonged into slender filaments, the first much the longest, being nearly three times the length of the fish; the others rapidly become shorter. The anal has four filamentous rays, which are shorter than those of the dorsal. The anal is very long, narrow, and the pectorals are convex on their posterior margins.

Color silvery on the sides, and bluish slate above; fine obsolete bluish-slate brown the upper half of the body. Ventrals blackish.

Length; 2 inches.

Habitat:—Sandwich Isl.

Remarks:—Very rare. Only one mutilated specimen seen. It is called "Blue-mohai."

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Caranx ciliaris

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Curanx. No 411

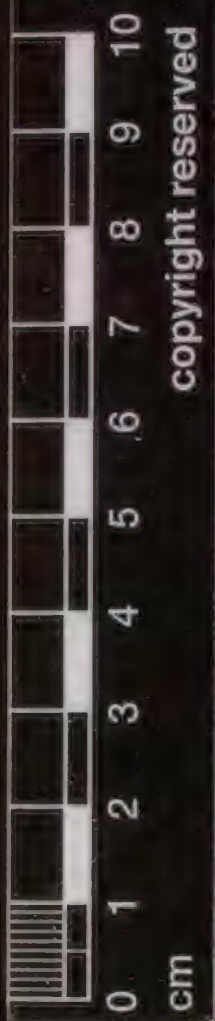
D. 7; A. 7-22; P. 2-22; V. 1-5; R. 22; C. 4, 1, 8, 2, 1, 5

This elegant shapely species is nearly similarly arched in the dorsal and ventral regions, both curvatures commencing at the end of the snout and terminate at the tail. The greatest depth of the body which is at the origin of the second dorsal fin is a trifle less than a fourth the total length of the fish. The greatest thickness is less than half the above mentioned depth. The head is slightly longer than deep and comprises a fourth of the fish, the caudal lobe excluded in the measurement. The large eyes are sub-circular, and their greatest diameter extends four times in the length of the head. The orbital region is hyaline. The mouth is very oblique and either jaw is furnished with a single range of minute hooked teeth. The hinder tip of the maxillary extends posteriorly as far as the anterior border of the eye. The nostrils are contiguous, of nearly equal size, elongate oval and situated midway between the eyes and the end of the snout. The scales are minute, and the lateral line is slightly arched over the pectorals, and its posterior half is mailed with 36 or 37 spined plates. The pectoral fin is obtusely rounded and slightly arched.

The first dorsal fin commences about one diameter of the eye posterior to the hinder opercle margin and is a little longer than deep. The first and fifth spines are nearly of equal height, being two-thirds as tall as the third, which

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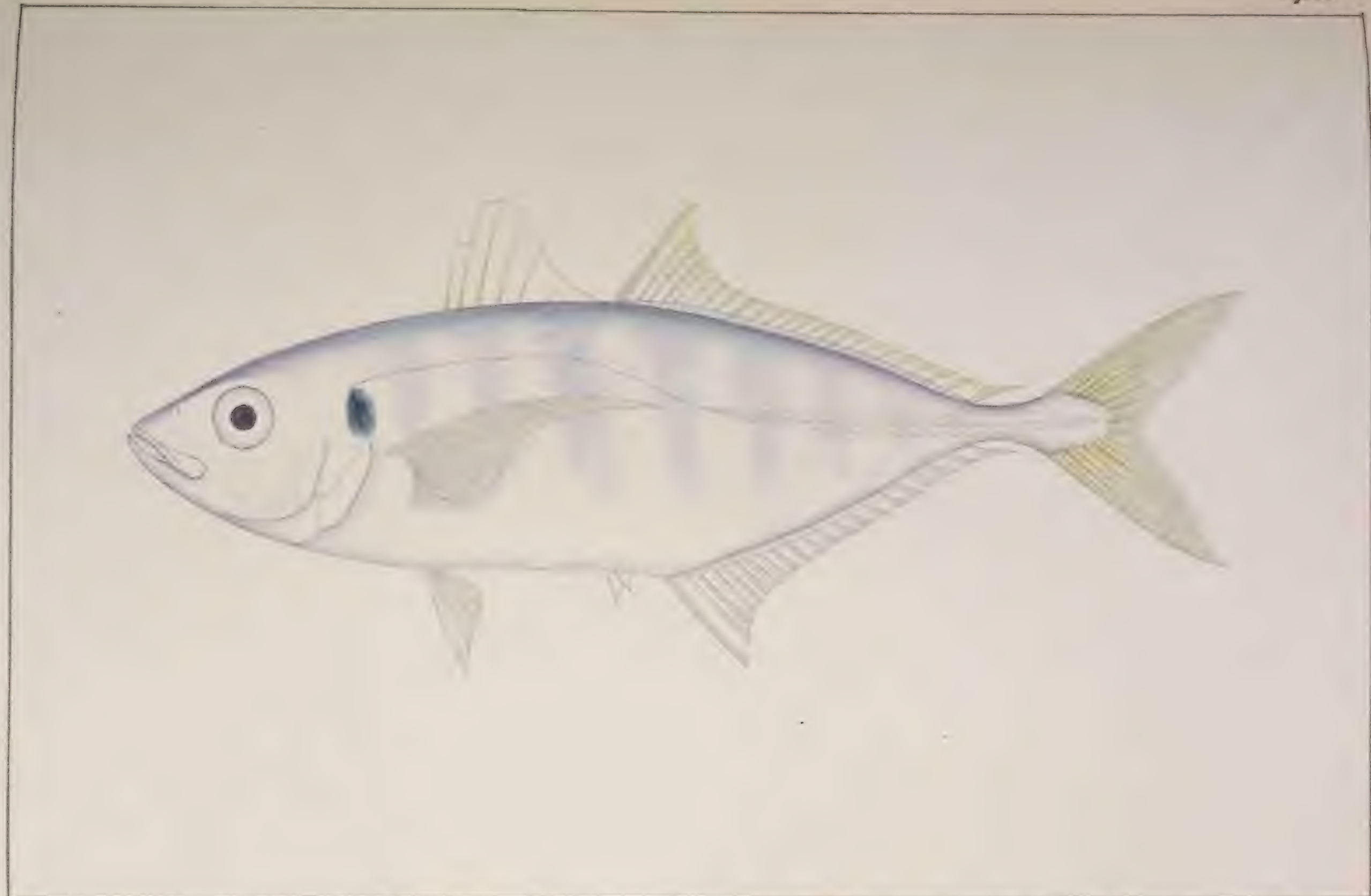
is the highest, which latter overtops the second
and ~~first~~ fourth which are also of nearly equal
height, and the sixth and seventh are very low.
The second dorsal is contiguous to the first, and
takes its origin rather nearer to the base of the
caudal than the end of the snout. Its anterior
portion which is triangular is about the
same altitude as the anterior fin, and extends
over a base equal to one-third of the total length
of the fish. Posteriorly the fin is very low and
the last ray is slightly prolonged. The anal fin
is of the same structure, but shorter on its
base than the opposite fin. The small ventral
fin is beneath the origin of the soft dorsal, and
the vent is midway it and the base of the ventral,
which latter are slightly pointed, and in length
equals the height of the dorsal. The pectorals are
very long, pectate and their length comprises
a little more than a fourth of the length
of the fish. The caudal is profoundly forked.
Color silvery with a yellowish gloss
on the flanks and absolutely fasciatus in
a vertical manner in the darker, the two lat-
ter characters only observed in certain lights.
The belly is white and the dorsal region
light violaceous blue. A blue black spot
marks the upper angle of the gill aperture.
Irides silvery. The dorsal spines, up per
half of the soft dorsal and caudal tinted
with yellow. The other fins colorless.

Length 10 inches

Hab. Pacific Ocean

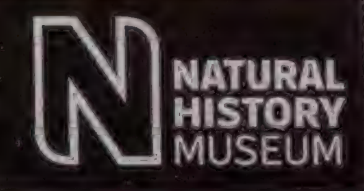
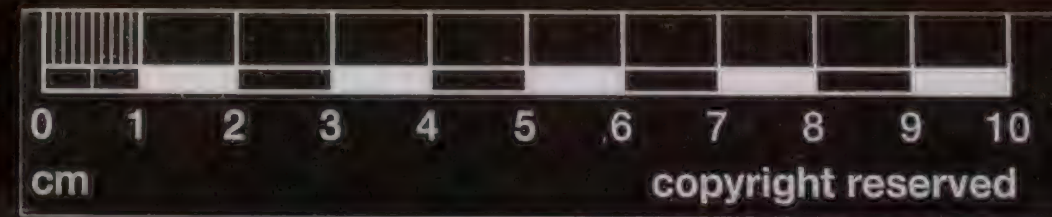
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Caranx



Veriola Sandwichensis, Garrett


B. 7; D. 7-33; A. 2-21; V. 1-3; P. 21; C. 6, 1, 4, 7, 1, 5.

This species is elongate oblong, more arched along the dorsal region than beneath, and the greatest depth of the body, which is at the commencement of the second dorsal fin equals the length of the head, or as compared to the total length two to nine. The upper outline from the snout to the origin of the soft dorsal is regularly but gently arched, rising up to the nape at an angle of about 30° . From the origin of the soft dorsal the profile descends in a nearly straight line to the tail. The lateral line is rather eccentric in its course to the tail. The eyes are large, oval, their greatest diameter entering just five times in the length of the head. The hinder tip of the maxillary extends back as far as a vertical intersecting the anterior border of the eye.

The first dorsal fin commences at a point immediately over the base of the ventrals; its length exceeds its height, the third ray is the tallest which gives the fin a strongly arched outline. The first ray which is horizontal we have not enumerated in the formula. The second dorsal arises at a point midway between the end of the snout and the hinder termination of its own base. Its anterior portion is about twice the height of the first dorsal, and as compared to its own base as two

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to seven. Its upper anterior third is slightly concave, and the remainder of the fin is very low.

The anal fin commences opposite to the fifteenth soft dorsal ray, and passes over a base nearly as long as the head. It is not quite so deep anteriorly, but more strongly concave than the fin above, with which it co-terminates. Just in advance of the fin may be seen two minute free spiny rays. A line extended from the base of the ventrals to the origin of the anal fin, then transferred forward just reaches the end of the snout. The ventrals are half as long as the head and the length of the pectorals equals half the length of the anal base. The caudal is deeply forked, the lobes elongate triangular.

Color pale bluish slate, glossed with bluish silver, passing in to olive slate above and white beneath. The upper anterior portion of the head is flesh color. A broad diffuse greenish yellow band extends from the snout to the caudal fin. The first dorsal is light greenish yellow and the caudal is light olivaceous slate shaded off posteriorly with greenish yellow. All the other fins more or less tinged with the latter hue.

Length 15 inches.

Hab. Sandwich Is.

A very rare species.

cm

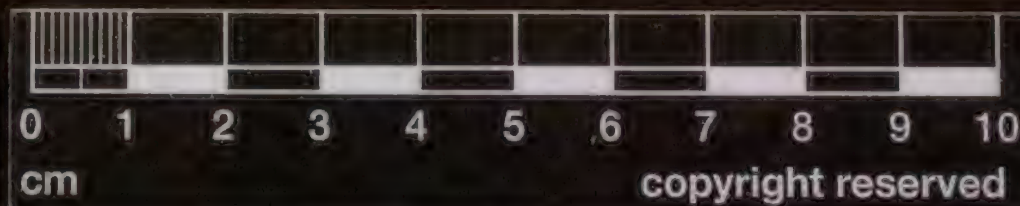
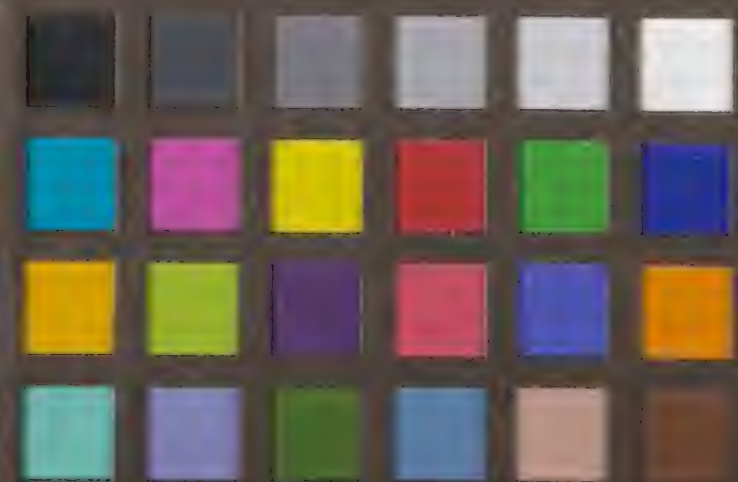
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Serida dumerilii

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Seriola bipinnulata, 2. et 3.

Seriola bipinnulata, 2. et 3. *Zool. Voy.* ?

p. 313, Pl. 11, fig. 2.

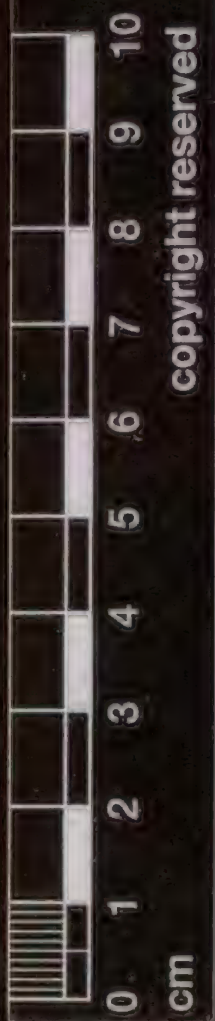
Bull. L. 6-27-2; *Atl.* 14-2; *Trans.* *Bull.* 6. 9, 17, 18.

This elegant shaped *Seriola* is much elongated, the upper and lower jaws quite similar, both commencing at the snout and terminating at the base of the caudal fin. The greatest depth of the body which is immediately beneath the origin of the second dorsal fin, is one-sixth of the total length. The greatest thickness at the base of the head is a trifle more than half of the above mentioned depth. The head is two-fifths and two-thirds in the entire length. The eye is of moderate size, sub-circular, its greatest diameter about one-sixth the length of the head, and inserted on the median line, a little nearer to the end of the snout than the hinder margin of the opercle. The hinder corner of the maxillary reaches a trifle posterior to the hinder nasal aperture. Opercular piece rounded, the preopercle veined. The lateral line is gently arched over the pectorals and reaches the median line of the body a little posterior to the origin of the anal fin.

The small spinous dorsal is arched and extends close to the second fin. The soft dorsal takes its origin midway between the base of the pectorals and the commencement of the anal fin, and passes over a base a trifle more than one-third of the total length of the fish. Its height which is

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greatest at its origin equals the space between the eye and the end of the snout. Posterior to the sixth or seventh ray the fin is low, scarcely diminishing in altitude to its termination, where the two last rays constitute a separate finlet.

The anal fin commences opposite the fourteenth soft dorsal ray, similar in structure to that fin, and extends over a base a little longer than the head.

The pectorals and ventrals are small, and slightly concave on their extreme margins. The large caudal is deeply forked.

The upper third is deep dusky blue. A broad light olivaceous band margined with bluish steel extend from the end of the snout to the base of the caudal fin. A shade of the same color as the band beneath the lower light margin. The lower parts are bluish steel, and the belly is white. Irides silvery yellow; cornea deep indigo blue. Spinous dorsal dusky steel. The second dorsal, caudal and anal light olive, the former tinged with bluish steel along its base, and the latter with white. Ventrals mottled with olive and white. Pectorals steel blue.

Length 2 feet 6 inches.

Hab. Society Isls.

We have seen but a single example of this species, which was captured outside of the reef. Its vernacular name is O-lo-wa. Long et Gaimard's specimen was obtained at the Guinea. Their figure is colored dull reddish green, and differs slightly in shape and number of rays.

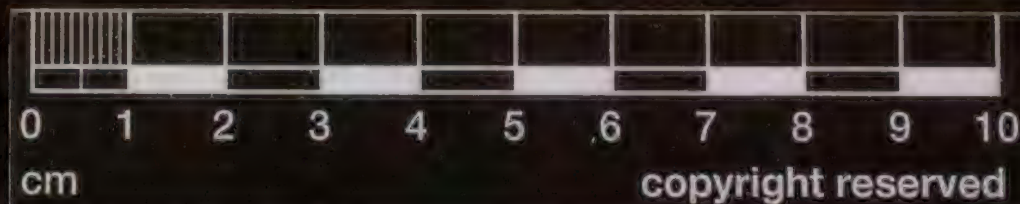
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Seridichthys bipinnulatus

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genus & Venerales, Rafin.

Form elongate, sub-fusiform, compressed.
 Scales small. Gilt with a horizontal keel.
 Head sub-ovate; cheeks scaly. Mouth with
 a moderate oblique gape; lower jaw the longer.
 Teeth numerous, fine disposed in bands. One
 long dorsal preceded by a few small free
 spines, each with a posterior triangular
 membrane. Anterior portion of the dorsal is
 deepest. Anal similar, shorter, and terminat-
 es with fin above; also preceded by two
 small free spines. Ventrals bifurcate. The
 ventals are posterior to the pectorals.

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Lanternates ductor, Lin.

Pilot-piscis, Ray, Sys. Pisc., p. 156.

Lotsmannichus, Bonn., Ichthy. Hassel., p. 325

Scomber dorso monopterygius, Gün., Zooph.
p. 319

Gasterosteus ductor, Lin., Syst. Nat., vol. 1,
p. 444.

Scomber ductor, Hasselt, Ner. Palat., p. 336.

" " Pisces, Voy. d'Alger, p. 73,
pl. 12, fig. 2.

" " Block, p. 338.

" " Shaw's Gen. Zool., p. 555.

Lanternates ductor, Lin. et Nat., Hist. Nat. de
Pois., vol. 5, p. 312, pl. 332.

" " Griffith's Zool., p. 134, pl. 47, fig. 1.

" " Wilson, Ency. Brit., vol. 1, Ichth.,
p. 104.

Centronotus ductor, Lin., Genus's Brit. Vert., p. 355.

Lanternates ductor, Garnall's Brit. Fishes, 2nd ed.
vol. 1, p. 100.

Gasterosteus ductor, H. D. Bennett's Whaling Voy.
vol. 2, p. 274 et fig.

Lanternates Ductor, Dekay's Rep. Fishes N. Y., p. 113.

" " Storer's Syn. Fishes North
America, Mem. American
Acad. Nat. Sci., p. 340.

B. 1 D. 4-27; A. 2-14; L. 1-5; P. 14; C. 7, 1, 9, 8, 1, 7.

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This cosmopolitan species is shaped very much like the common blackfish (*Scomber verticalis*, Mich.). The head comprises two-ninths of the total length. The eyes are large, their diameter being nearly a fourth of the length of the head. The posterior end of the maxillary does not quite reach a vertical touching the anterior border of the orbit.

The dorsal fin extends over a base equal to one-third the entire length of the fish. Its anterior edge is just midway between the end of the snout and the base of the caudal. Its anterior third rather rapidly tapers away, and the remainder preserves nearly an equal height. The anal starts from a point opposite to the fourteenth soft dorsal ray. The ventrals are pointed, and when laid back do not reach the anal by more than their own length. Pectorals as long as the ventrals. The caudal is deeply bifurcate, the lobes broad lanceolate.

Color along the dorsal region bluish-black; sides bluish-silvery; belly white. Sides ornamented with five, wide, vertical blue-black bars, three of which enclose the dorsal fin and two are continued across the anal, a short bar on the occipital region. Sides silvery shaded

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with brown. All the fins have a slight bluish tinge, deeper on the external half of the ventrals, and a blue bar marks the middle third of the caudal.

Length, 2 inches.

Habitats.—In all seas and pelagic in its habits.

Remarks.—This well known fish has a world wide range. I have seen them in the Atlantic, Pacific and Indian Seas. As they are frequently seen following sharks, they have received the vulgar name of Pilot fish from the mistaken supposition that they guide those large fishes to their prey. I have seen numbers of them following the vessel for several days, keeping close under the cut-water or rudder. I have also remarked if we caught a shark, the ductors continued to follow the vessel until another shark makes its appearance when they all seek the protection of that sea-monster. It is evident they follow their fishes and vessels for protection from their enemies.

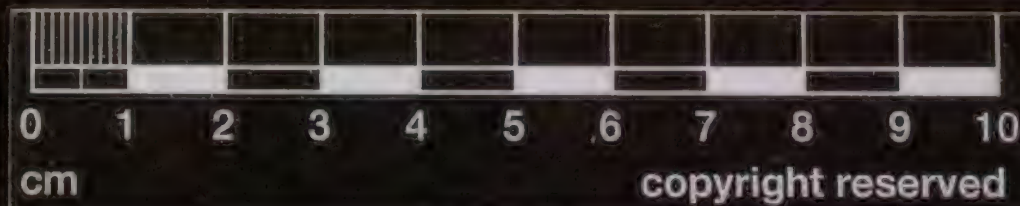
Our figure and description are from a specimen captured at the Sandwich Is.

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Naucrates ductor



Fish elongate, strongly compressed, sub-fusiform, tapering either way from the origin of the anal and dorsal fin. Scales very minute. Head rather small, scaly, sub-conic, truncate above. Lower jaw the longer; teeth subulate, hooked, disposed in two irregular rows. Ventrals contiguous, consisting of narrow elliptical sub-vertical orifices. Lateral line elevated. Two spines before the soft dorsal, each furnished with a triangular membrane. Soft dorsal and anal, opposite, similar, very long, their anterior portion deepest. A small fin before the anal, composed of two spiny rays. Ventrals forked. Ventrals triangular, bound to the belly by membrane. Pectorals small.

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Lichia lateralis, Gannth.

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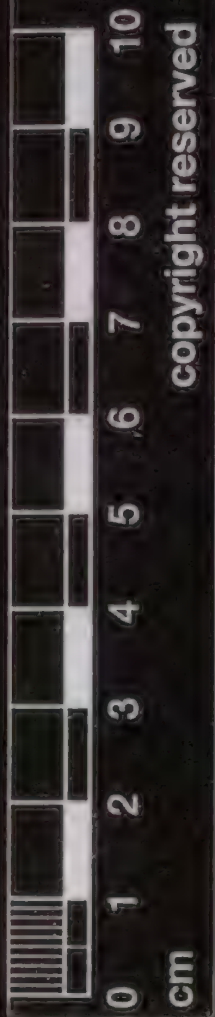
D. 5; A. 1-7-21; S. 2-18; L. 1-5; P. 18; C. 7, 12, 7, 1, 6.

The greatest depth of the body is a trifle more than one-fifth of the total length, and the greatest thickness equals one-third of the above mentioned depth. The head, which comprises one-sixth of the fish, has the lower line more arched than the upper, which latter gradually rises in nearly a straight line to the nose, whence it curves in its course to the dorsal fin. The eyes are large, sub-circular, their diameter entering four times in the length of the head and once in advance of their anterior margins. The hinder margin of the small maxillary reaches back as far as a vertical line touching the hinder border of the eye. A few veins may be observed on the rounded gill covers. The scales are lanceolate in their imbrications, and each with a depression on its surface. The anterior third of the lateral ^{line} is somewhat wavy, and may be traced anteriorly as far as the eye, where it throws out short lateral branches.

The first dorsal spine is imbedded in the integuments and horizontal in its position. The remaining seven which are very small are lanceolate and can be folded back

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into little grooves. A line extends from the commencement of the soft dorsal to the end of the snout and then transverse backwards just reaches the base of the caudal. Its height is about one-fourth the length of its base, which latter is twice as long as the head.

Color: the upper third is bluish-steel, and grayish-silver beneath. It yellow tinge in the region of the eyes. Sides silvery-yellow. Dorsal spines, and the anterior portion of the soft dorsal dusky. Caudal steel-blue. Ventrals and anal white. Obscure dusky some spots on the sides, disposed in two horizontal rows.

Length - 18 inches.

Habitat. - Sandwich Is., Society Is.,
Kingman's Is.

Remarks. - This beautiful species is not common, and may be determined by the two lateral rows of spots.

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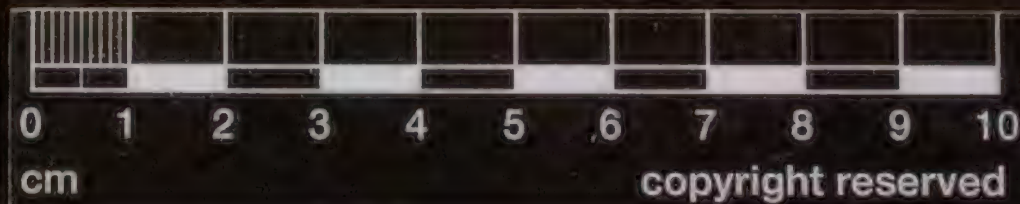
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Chorinemus sancti-petri

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Genus Trachinotus, Lacép.

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Form oblong, sub-elliptical, and strongly compressed. Scales minute, a patch of smaller ones on the cheeks, and they more or less encrust the caudal fin. Lateral line arched over the pectorals. Head sub-conical. Teeth in villiform bands. Two spines before the dorsal and anal; each spine with triangular membrane. Both fins anteriorly tapering into long points, posterior of which they are very low. Caudal with long forks. Ventrals very small, inserted behind the pectorals. The pectorals rather small and sub-falciform.

This genus may be distinguished from Lichia, Cuv., by their deeper body, more vertical profile and the dorsal and anal tapering into longer points.

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*baillonii*Trachinotus quadrimaculatus, Garrett.

B. 8; D. 6-24; A. 2-24; P. 4-5; P. 14; b. 6, 1, 8, 7, 1, 8.

The upper and lower outlines are nearly similar. The greatest depth, which is at the origin of the soft dorsal equals about two-seventh of the entire length. The head comprises two-eleventh of the total length. A slight concave depression may be seen above the eyes. The hinder angle of the maxillary extends behind the anterior limb of the orbit. The eyes are rather large, horizontally oval, furnished behind and in front with a crescent shaped veil; the length of the orbit enters four times in the length of the head and the posterior limb is just midway between the end of the snout and the hinder limb of the opercle. The two nasal orifices are near together, vertically oblong, and situated a little above the center of the eye. Pericard with a prominent rounded border.

The six free spiny rays in advance of the dorsal fin are very small, the anterior situated just midway between the soft dorsal fin and the hinder termination of the opercle. The second dorsal passes over a base equal to one-fourth the entire

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length of the fish, and its pointed anterior portion in height equals the length of the head. The similar shaped anal has its anterior portion drawn out into a longer point than the fin above. The two free spines in front are very small. The very small ventrals are bound by membrane to the belly. The upper caudal fork is much longer than the lower one, being nearly one-third the entire length of the fish; they both taper to acute points.

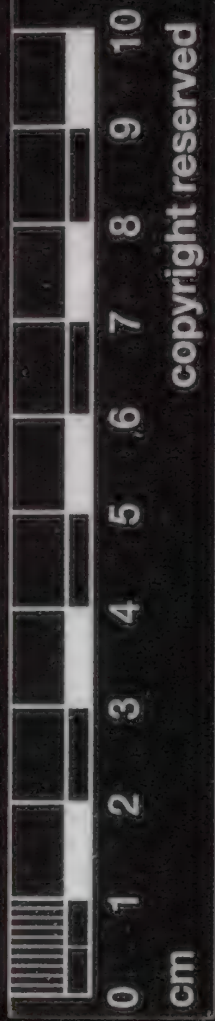
Color brilliant silvery on the sides, and burnished steel-blue along the back, which in certain lights reflects light green. The upper portion of the head tinges olive. Along the course of the lateral line there are four, ^{rather} larger, remote roundish blue-black spots. Basal half of the pectorals, the caudal, and the anterior portions of the dorsal and anal, blackish.

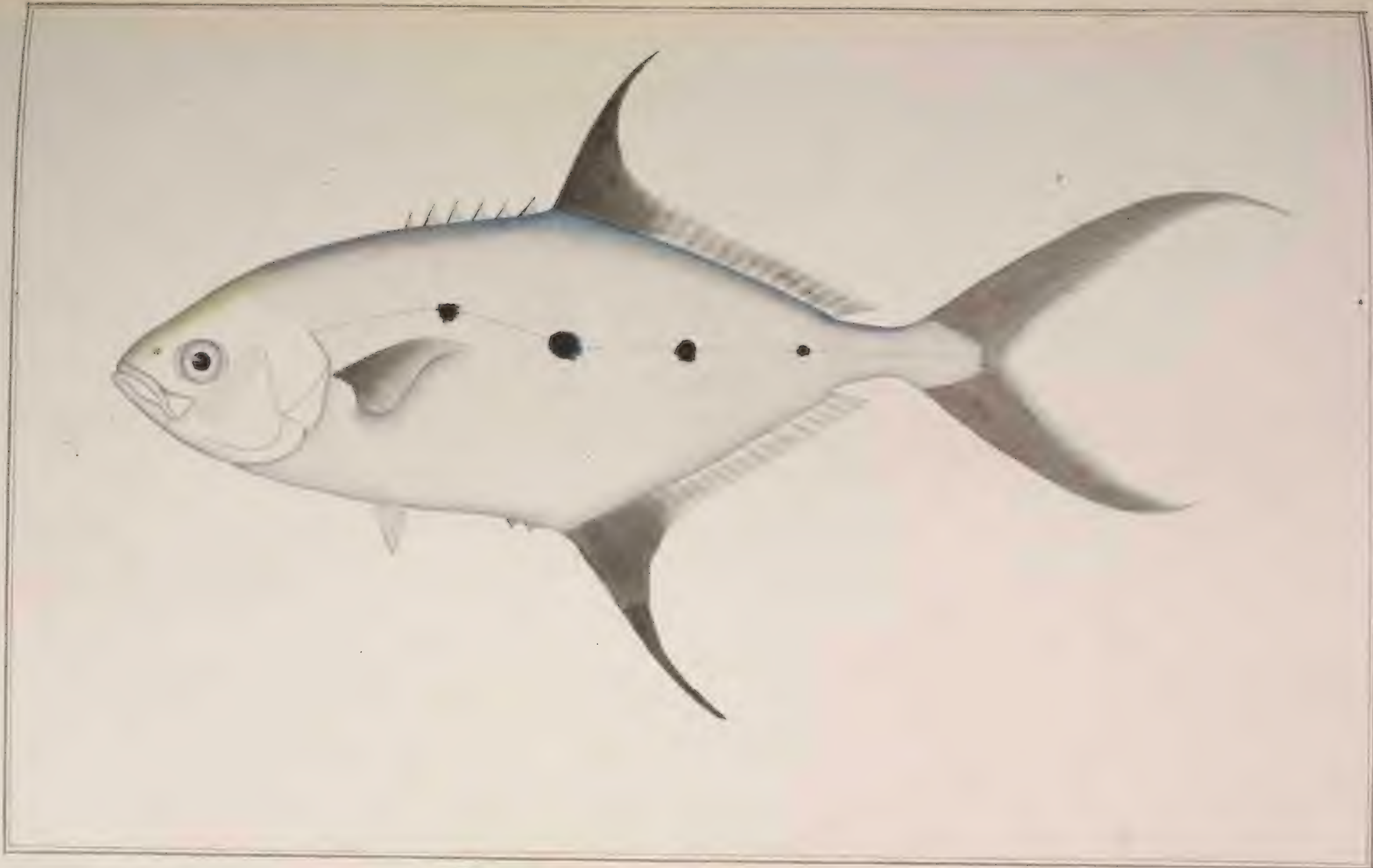
Length, 18 to 20 inches

Habitat: Society Isls.

Remarks: At the Society Isls, this fine species is called "Pa-hava-hava". The four lateral spots along the side of the body are its most obvious characters.

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Rachynotus bailloni



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Psettus argenteus
Psettus No 1197

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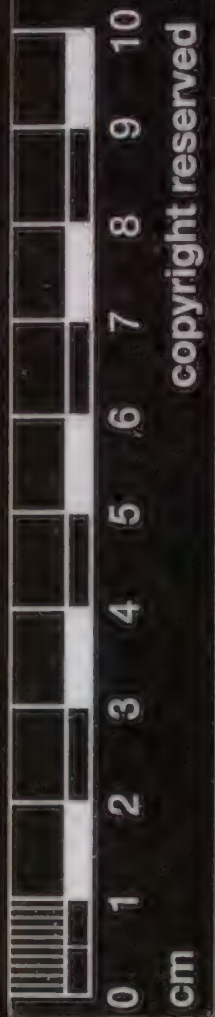
D. 30; A. 32; P. 16; 63, 1, 4, 7, 1, 2.

The general aspect of this species is sub-ellipsoid, strongly compressed and covered with fine scales, which envelope the head as far as the snout and even at both dorsal and anal fins. The upper profile of the body is strongly arched, though nearly rectilinear from the snout to the dorsal fin. The lower profile is more angular, the apex of which marks the origin of the anal fin. The lateral line is arched. The greatest depth of the body and the distance from the end of the snout to the hinder termination of the dorsal fin are equal. The head comprised a fourth of the total length of the fish, and the large circular eyes are nearly half the length of the former in their diameter.

The height of the dorsal fin, which is equal to one-third the length of the fish, is equal to the length of its own base. It rapidly tapers away posteriorly and is obliquely concave above. The anal fin is deeper and more pointed than the fin above, and the hinder margin of the caudal is concave.

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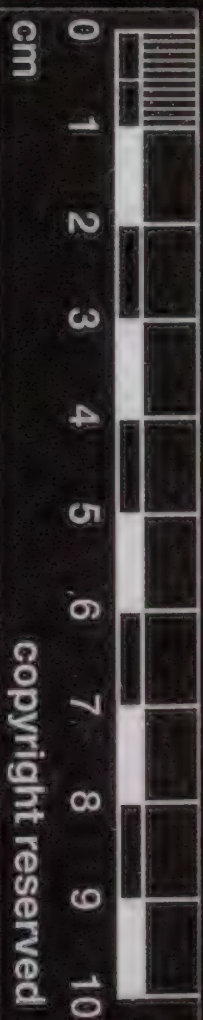
Color silvery. Head greenish slate above and ornamented with a similar but deeper colored line which curves upward and backward intersecting the eye. A paler but similar band extends from the origin of the dorsal to the ventral. Under carnation. The dorsal fin is tinged anteriorly with yellow and together with the anal tipped with blackish. The caudal is pale amber yellow, and the pectorals colorless.

Length 3 inches.

Hab. Samoa Is.

Probably immature.

Native name Koko.



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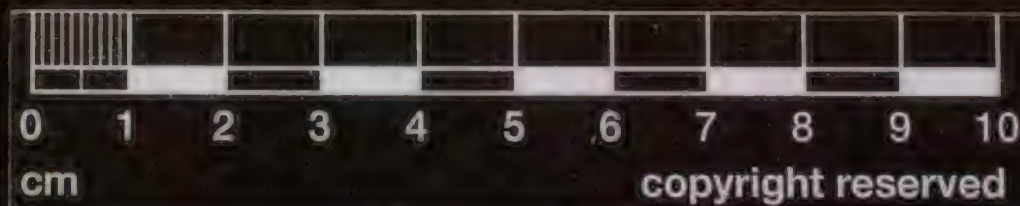
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Psettus argenteus

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Genus *Platax*,

Form sub-triangular, strongly compressed. Head short, obtuse and precipitate. Eyes rather large. Mouth small; jaws even, armed with trenchant, equal teeth and an inner range of ^{brush-like} ~~canine~~ ones. Scales of moderate development or small, more or less ascending the vertical fins, covering the cheeks and sometimes the opercle. Lateral line well arched. Branchiostigmal rays four. Dorsal and anal moderately or excessively developed and have each a few spines buried in their anterior edge. Ventrals long, pointed, inserted in advance of the pectorals.

orbicularis, Fork.
Platax resperitilio, Bloch.

Chaetodon quadratus, nigrescens, Loba, Mus.
Vol. 3, p. 67, Pl. 25, fig. 16

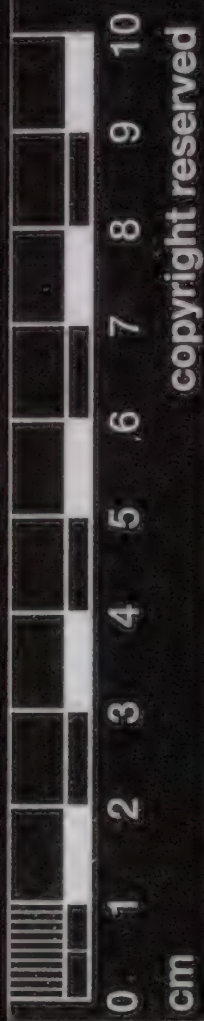
Chaetodon resperitilio, Bloch, Vol. 3, p. 67, pl. 139, fig. 2.

Platax Blochii, Cuv. et Val., Hist. Nat. des Poiss., Vol. 7, p. 222.

Platax resperitilio, Temm. et Schl., Fan. Japon.
p. 43, pl. 43.

Richardson, Rep. Brit. Mus., 1846, p. 246.

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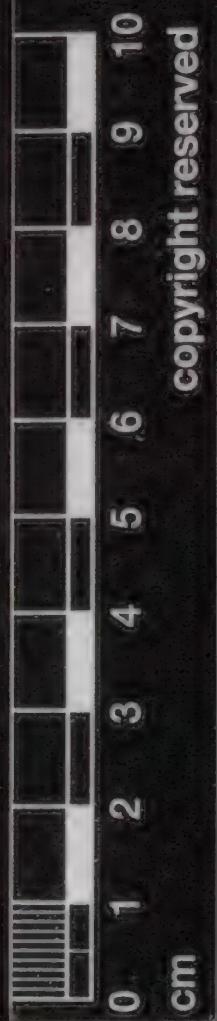


D. 4; L. 37; A. 3-27; H. 15; P. 15; C. 3, 1, 2, 1, 2.

A single example of this curious fish now before me, measures six inches in total length, and ten inches in depth from the tip of the dorsal fin to that of the anal. The head constitutes exactly one-fourth of the total length, its superior profile rises at an angle of about 80° as far as the interorbital space whence it falls backward to 65° . The large eyes are circular, being inserted just once their own diameter upward and a little backward from the angle of the mouth; their diameter as compared to the length of the head is as one to three. The hinder tip of the maxillary is in vertical with the hinder nasal opening. Specular pieces, except preopercle scaled.

The dorsal is very high, rising to a pointed tip; its anterior edge being a continuation of the upper profile of the preopercle head, and its extreme margin is convex and vertical. The anal fin is smaller, but quite similar to the fin above. The ventrals are nearly half the length of the fish. Pectorals small, elliptical. Caudal truncate.

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Color grayish-steel; head and breast
creamy-yellow, the former white beneath.
A wide diffuse olivaceous-brown band
extends from the forehead, through
the eye and passes under the throat.
There is a second nearly obsolete band
parallel to the first, just back of the
head. Sides olive-brown, with an
inner golden ring. Pectorals colorless.
Ventrals olivaceous-yellow, streaked and
tipped with black. All the other fins
the same color as the body except
the outer third of the anal which is
black.

Length, 6 inches.

Habitat: Society Is. Japan,
East Indies.

Remarks: At the former
location we procured two specimens
of this remarkable fish, both of which
were perhaps immature. Its deep and
pointed dorsal and anal fins will
readily distinguish it from *P. caepi*,
found at the same location.

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Platax orbicularis

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Platax ^{orbicularis, Fork.} capi, Lesson.382
193Platax capi, Lesson, Voy. Coquille,
p. 172.

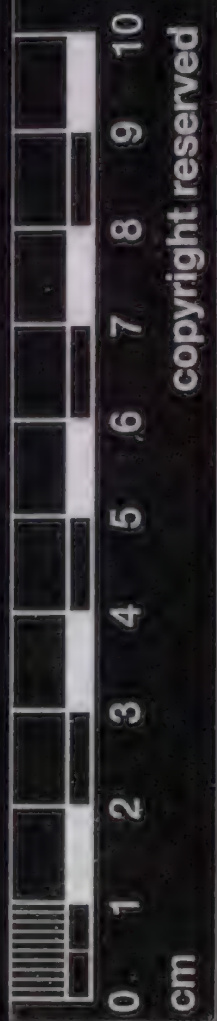
B. 4. D. 4-35 or 36; A. 3-27; V. 1-5; P. 18; C. 3, 1, 2, 2, 1, 2.

This Platax is of a somewhat triangular contour and the head comprises nearly two ninth of the total length. The upper line of profile from the end of the snout is precipitately convex, rising up to the nape at an angle of nearly 50° whence it falls to 40° in its course to the dorsal fin. From the origin of the latter fin the descent is also 40°. The lower profile is less precipitate. The head is scabrous. Eyes large, sub-oval, their greatest diameter as compared to the length is as two to seven.

The dorsal fin is half as long as the fish, gradually tapering posteriorly, and scaled nearly to its upper margin, which is slightly convex. Its height is more than half the length of its own base and the anterior spines are buried in its edge. The anal is shorter in its base, but deeper than the fin above and much more strongly hooked on its margin. It is also scaled like the dorsal. The ventrals are shorter than those in the preceding species, and the pectorals are sub-ovate. The caudal fin is undulately emarginate.

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Color grayish silvery with a
violetaceous gloss, and marked with two
light brownish diffuse bands; the first
descends from the nape to the throat, being
interrupted by the eyes, and the second
commences on the anterior edge of the pectoral
fin and tapers away in its descent to the
base of the ventrals. Irides silvery tinged
with brown. Pectorals light amber yellow,
the ventrals yellow with their anterior parts
in brown black. All the other fins with
an amber yellow tinge and dusky toward
their margins.

Length, 15 inches.

Habitat: Society Isls. Samoa Isls.

Lesson procured his specimen at
Tahiti, where it is called "api", which he
adopts for this specific name. Its flesh
is much esteemed.

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Platax orbicularis



Zanclus cornutus, Lin.

Ican Swangi, Ruyssch, Thent. Mus., Vol. 1,
p. 2, pl. 1, fig. 12.

Gesander Trompitter, Valenciennes, Hist. Nat. Ind.,
Vol. 3, p. 328, fig. 164.

Tetragonopterus marginatus, Klein, Miss. Piss.,
Vol. 4, p. 33, pl. 12, fig. 2-3.

Boznatje Klipensch, Bonard, Piss., Vol. 1, p. 5, pl.
2, fig. 12, et p. 21, pl. 12, fig. 76.

Chaetodon oculis 2 brevibus supra oculis, Artedi,
Ichn. 71.

Chaetodon canescens, ac. utrinque ad os, Art.
Ichn. 13.

Chaetodon duobus oculis brevibus, Seba, Mus.,
Vol. 3, p. 65, pl. 25, fig. 6.

Chaetodon canescens; ne aculeato, Seba, Mus., Vol.
3, p. 66, pl. 25, fig. 7.

Chaetodon rostris cylindrico, Bloch, Ichth., Vol. 3,
p. 72, pl. 206.

Chaetodon cornutus, Lin. (Gmelin), Syst. Nat., p.
1241.

Chaetodon canescens, Lin. (Gmelin), Syst. Nat.,
p. 1241.

Zanclus cornutus, Linn. & Vol., Hist. Nat.
des Poiss.

D. 2-12; A. 3-36; V. 1-8; P. 16; C. 3, 1, 2, 2, 1, 3.

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The general outline of the breast region presents an acutely rounded arch. From the base of the snout to the origin of the anal fin, the outline forms the quarter of a circle. The head is a little less than a third of the total length, its superior line of profile nearly vertical in front of the orbits and above those organs it ascends at an angle of 50° . The snout comprises half the length of the head. Eyes subcircular, their greatest diameter one fourth the length of the head, snout included. In front of the eyes may be seen two acute bony tubercles. Caudal concave behind.

Color: the anterior portion of fish is grayish-white, gradually becoming yellow posteriorly. A broad black zone, filling the space between the interocular area and dorsal fin, passes downward, enclosing the eyes and base of the pectorals, and terminating on the lower line of the breast and belly. A second larger, but narrower band tapering upwards, extends from the lower tip of the anal fin, across the posterior end of the body and terminates in a fine point high up in the dorsal fin. Its hinder margin is traversed by a white line, and two similar ones on the side of the breast. Lower part of the snout black,

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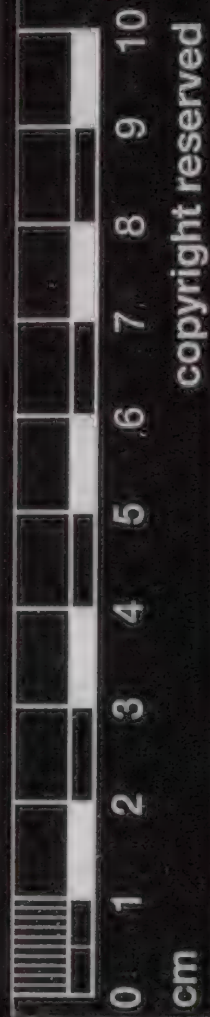
the upper orange, margined brown. All the dark colors on the head with narrow opaque-white margins. Sides yellowish, shaded with dusky. Pectoral colorless. Ventral black. The anterior edge of the dorsal and anal, whitish, the remainder of the fins yellow edged with the former color. Caudal black, posteriorly margined with whitish.

Length, 6 to 8 inches.

Habitat. - Sandwich Is., Society Is., Fanning Is., Hervey Is., Caroline Is., East Indies.

Remarks. We have collected specimens of this species at all the above mentioned localities. Cuvier was right in considering the *Z. canescens* of *Linnaeus*, to be the young of this species.

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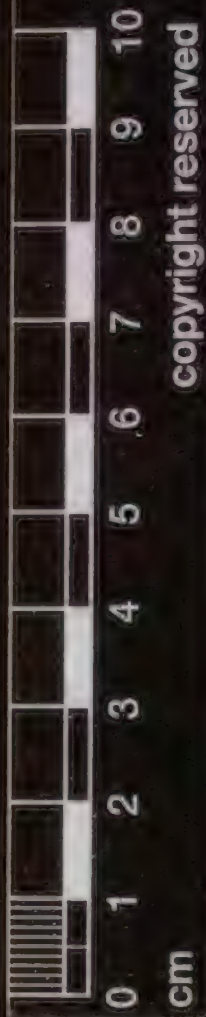
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Zonclus cornutus

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*Anomalops palpatus*No 317 number among *Supp. 1895*

Gen. Char. Body oblong, compressed and covered with very small rough scales. Head large, scabrous, covered with scabrous bony plates, obtuse and turned in front of the eyes, which latter are large. Nostrils double, approximating in front of the eyes. Mouth ample, very oblique, and both jaws and palatines armed with exiguous granulated teeth closely-set teeth, disposed in bands. Opercular bones scabrous, and the preopercle exhibits fine dentations along its margin. A profound crescent-shaped excavation contiguous to the lower limb of the orbit, which is furnished with a cutaneous flap-like lid attached anteriorly. Gills continuous. Branchiostegal eight. Lateral line rectilinear. Dorsals two, contiguous, the anterior small. Anal much smaller than the second dorsal, more posterior and without spiny rays. Ventrals beneath the base of the pectorals, subtriangular, without spiny rays. Pectorals small, bandal forked.

Specific Char:

B. 8; D. 4/16; A. 13; V. 6; P. 17; G. 3, 1, 9, 3, 1, 4.

The head comprises a fourth of the total length, which latter, as compared to the greatest depth is as 4 to 1. Both the upper and lower outlines are nearly similar, the ventral arch being a trifle greater than the dorsal. The eyes are horizontally oval, their length nearly half

NATURAL
HISTORY
MUSEUM

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that of the head, and situated nearer the end of the snout than the opercular corner. The hinder limb of the orbit is slightly dentated and the posterior tip of the maxillary extends a trifle behind a vertical cutting the centre of the eye.

The first dorsal commences immediately above the hinder limb of the opercle, and passes over a base equal to half the length of the head. It is composed of four rays, the first nearly as long as the second which is the tallest, and is a trifle shorter than the length of the base; the third ray is about the same height as the first and the fourth is one-third shorter, so the general shape of the fin is sub-triangular. The second dorsal is nearly as long as the head, and rapidly tapers away posteriorly, so that the last ray is only half as tall as the anterior one, which latter is equal in height to three-fourth the length of the base. The ~~second dorsal~~ anal is shaped like the soft dorsal and like that fin is very slightly concave. It commences opposite the posterior fourth of the soft dorsal, or just midway between the ventral and caudal, and is more oblique on its base than the fin above. The ventral are about half the length of the head, and the pectorals still smaller and inserted rather low on the breast. The caudal is deeply forked, the lobes pointed and nearly as long as the head.

Color blackish, with deep black fins. The second dorsal and caudal mar-

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joined with white and the former
with a horizontally oblique tapering
colorless band.

Length $7\frac{1}{4}$ inches

Hab. Panama Isl.

A very rare fish of which we have
seen but one example.

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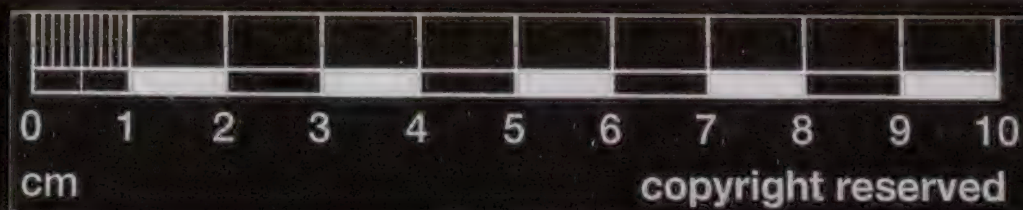
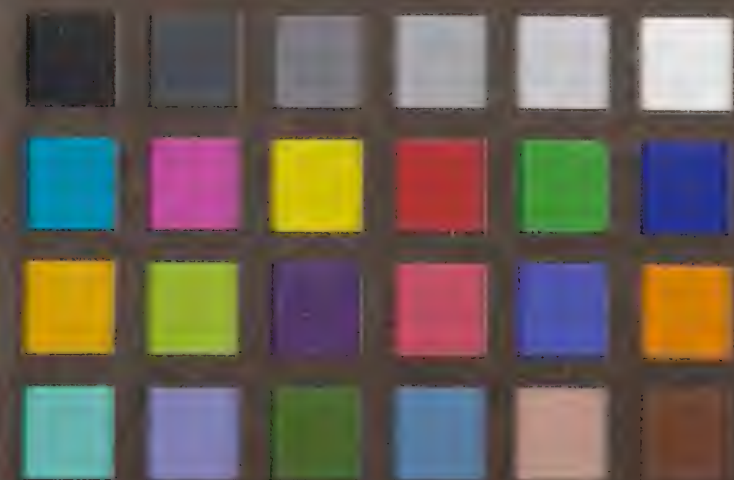
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Anomalops palpebratus

317
195



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fasciata.
Egunga No 344

196

D. 4; L. 7-16; A. 4-13; V. 1-5, P. 17; C. 6, 1, 8, 4, 1, 8.

The head, which terminates into an obtuse snout, comprises two-ninth of the total length, and its upper line of profile is profoundly concave above the eyes, crossed by the sudden rise of the nape, which is 40° above the horizontal line of the snout. Both the upper and lower outlines of the body posterior to the origin of the dorsal fin are gently curved, the former descending at an angle of about 30° , and the latter about 35° . On the lower profile between the ventrals and the end of the snout may be seen two equidistant slight angles. The greatest depth of the body which is beneath the commencement of the dorsal fin is equal to half the length of the fish, caudal fin excluded in the measurement. Both interorbital space and nape are strongly compressed. The eyes are large, obliquely sub-oval, approximating the upper line of profile, and their greatest diameter is a little more than one-third the length of the head. Just upward and forward of the eyes are two approximating large vertically oblong nostrils. The mouth is rather small, the upper jaw a trifle the longer, and both furnished with a band of closely-set card-like teeth. In a specimen six inches long the snout can be protruded one inch. The lips are rather thick

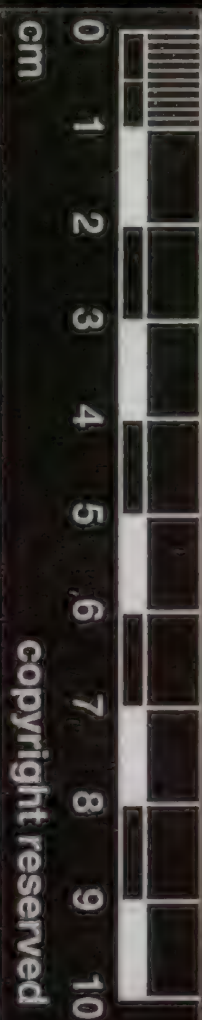
NATURAL
HISTORY
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and the hinder point of the maxillae
extend to a vertical touching the
anterior limb of the orbit. The large
preopercle is rounded off on its corner.
The lateral line is gently arched,
and consist of oblong elevated horizon-
tal contiguous tubes.

The dorsal fin commences
a little posterior to the base of the
pectorals, and passes over a base equal
to twice the length of the head. Its first
ray is drawn out into a long ^{rigid} filament
equal to the length of the whole fin.
The second dorsal ray is less than one
third as long as the first and the
others rapidly diminish in height
to the last which is a trifle shorter
than the first articulated ray, which
gives the spiny portion a triangular
aspect. The soft part of the dorsal
occupies more than two-thirds of the
length of the ~~first~~ fin and is of nearly
the same depth throughout its course,
and its margin is concave with
the slightly arched back. The anal
fin starts from a point which is
a trifle nearer the base of the caudal
than the end of the snout, and extends
over a base equal to one-third the
total length of the fish. Its anterior
spiny ray is minute, the second
very long, equalling nearly half
the length of the base of the fin;
the third spine is half as long
as the second, the fourth still shorter,
and the soft portion is similar to
the fin above. The ventrals are sub-



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HISTORY
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triangular and nearly half as long
as the head. The pectorals are much
longer than the ventrals and their
posterior margin is convex. The
caudal is profoundly forked, the
lobes a little longer than the head,
pointed broad lanceolate.

Color brilliant silvery. A
horizontal row of obscure oblong yel-
lowish spots extend from the origin
of the lateral line to the end of the
dorsal fin. The top of the head is
bluish-steel. Sides silvery. Fins nearly
colorless except a marginal tinge
of yellowish on the dorsal and anal fins.
The caudal fin is tipped with yellow
and shaded off posteriorly with black.

Length 8 to 10 inches.

Hab.—Japan, Ito.

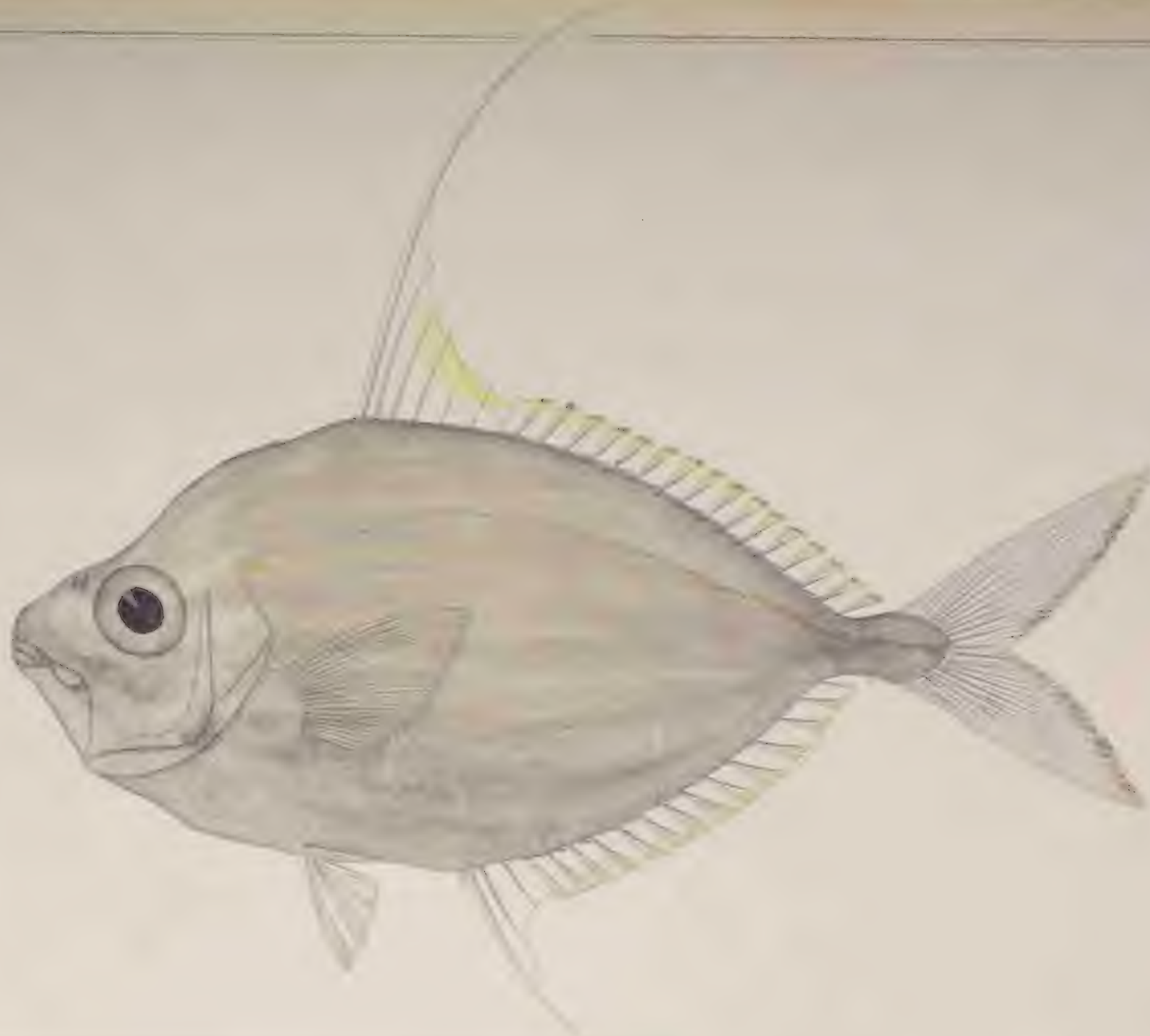
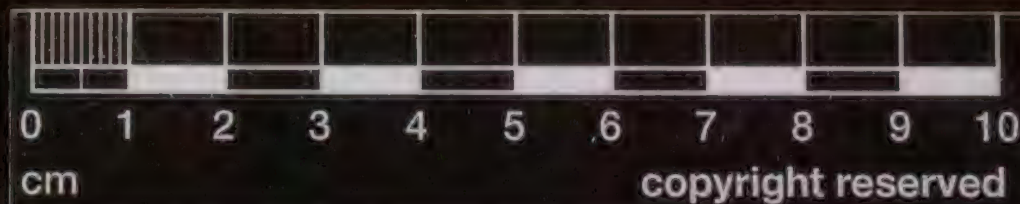
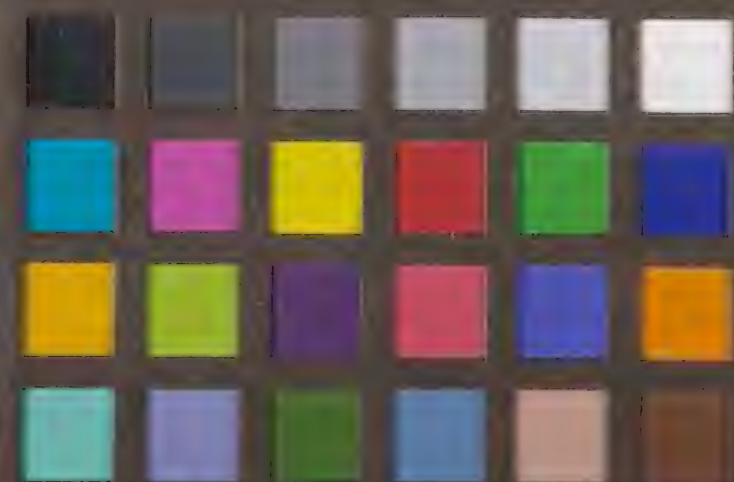
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*Equula fasciata*

genus Curanxomus, Lacép.

Form elongate, strongly compressed.
Scales exiguous, covering body and cheeks.
Head but slightly elevated, snout gently convex above. Eyes in a mediate position.
Mouth oblique; small acute hooked teeth in both jaws and on vomer, the former in a single row, one on the palatines. Dorsal fin extends along the whole of the back, and its ~~posterior~~^{anterior} portion is composed of simple flexible rays. A long low anal, similar, and co-terminal with the hinder portion of the dorsal. Ventrals inserted beneath the pectorals, the latter paleiform. Ventrals bifurcate.

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Caranx omous punctatus, Garroth.

D. 24-26; A. 2-23; V. 5; P. 18; C. 6, 1, 2, 1, 5.

The head, which comprises about a fifth of the total length, is acutely rounded in front, and its upper line of profile is somewhat bechant and convex. The greatest depth of the body is about two ninths of the entire length. The ventral line is a little more arched than the dorsal, the latter presenting a regular curve from the end of the snout to the tail, while the former is horizontal between the ventral and anal fin, whence it runs to the tail in a more precipitate manner than the line above. The lateral line exhibits a slightly undulating arch over the pectorals. Opercular pieces rounded. Eyes large, longitudinally oval, and situated so that the median line of the body cuts their upper third; their length exceeds four times in that of the head. A vertical line drawn from the hinder tip of the maxillary intersects the anterior third of the orbit. In a groove running in advance of the eye may be observed two approximating nostrils, which are a trifle nearer to the orbit than the end of the snout.

The dorsal fin commences at a point midway between the eye and the hinder margin of the opercle, and extends quite close to the caudal, leaving a free space between the two nearly the length of the eye. The anterior rays rapidly increase in length, the first being very small, and it reaches its greatest altitude at the fifteenth or sixteenth ray. Its anterior half is gently arched in outline, and its articulated portion, together with the anal, are slightly concave. The latter fin starts from a point opposite to the thirty-third ray in the dorsal, and is the deepest anteriorly. The length of the ventrals are a trifle more than half the length of the head. The small pectorals are a trifle shorter than the ventrals. The caudal forks are narrow, tapering to points, and their length equals one-fifth of the total length of the fish.

Color along the dorsal region light blue; sides brilliant silvery, in certain lights reflecting coppery yellow. Not few remote black spots scattered over the sides of head and body. Dorsal deep blue, its posterior half yellow above. Caudal bluish silvery shaded off with fine yellow. Anal silvery shaded off with yellow. Ventrals white, tinged with yellow. Pectorals colorless.

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Length, 14 to 16 inches.

Habitat.—Pacific Ocean.

Remarks.—This elegant species is pelagic in its habits, and is known among seamen by the vulgar name of "yellow tail". Our specimen was caught with hook and line while making a passage from Tahiti to the Sandwich Islands.

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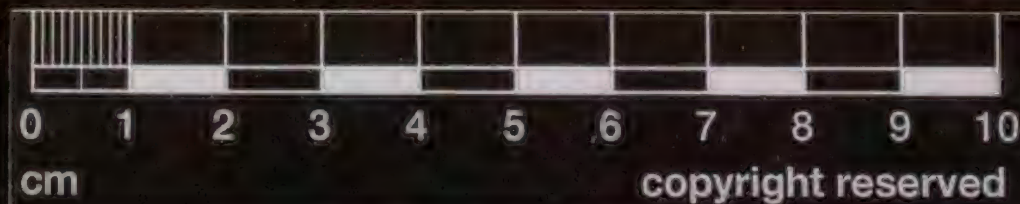
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Coryphaena equisetis

197



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genus Thynnus, Cuvier.

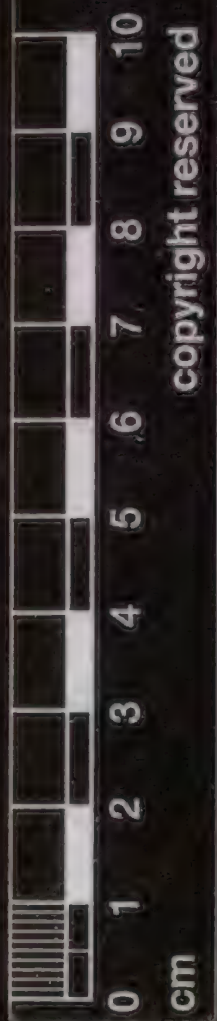
Form elongate, fusiform, compressed. Scales minute, smooth, inconspicuous. Ventrals large and deeply sinuous. Lateral line slightly undulated. A horizontal cartilaginous caudal fin on the tail, which terminates behind between two little oblique crests. Head pointed, jaws even; teeth in a single row, small and pointed. Mouth oblique. Fins small. The two dorsals approximating. The spinous high and pointed on its anterior portion, and the soft, together with the anal fin is more or less detached forming little sub-triangular finlets. Anal similar, but more posterior than the soft dorsal. Caudal narrow crescent-shaped.

Thunnus ^{thunnus} otava, Garrett

D. 6; I. 15-12-8; A. 13-7; P. 6; P. 25; 6, 9, 5, 4, 7.

Both the upper and lower outlines are ^msymmetrically arched from the end of the snout to the tail. The greatest depth is nearly one-fourth of the total length, and the greatest thickness is more than ^{half} the above mentioned depth. The head constitutes a little more than a fourth of the fish.

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Kanagawa.

Scomber? No 412

B. 6; L. 10-12-5; D. 12-5; P. 1-5; A. 20; V. 7, 1, 1, 1.

This species is rather strongly compressed, and the greatest depth of the body, which is between the two dorsals is equal to one-fourth of the total length, caudal excluded. The upper and lower outlines are quite similar in their curvature, and the lateral line has a gentle descent in its course to the tail, and is somewhat undulated. The scales are very small. The head is scaly, and comprises nearly a fourth of the fish. The eyes are large, sub-circular in shape, their diameter equalling a fourth of the length of the head, and the nostrils are about midway between the end of the snout and the orbits; the nasal openings are remote, the anterior one small, sub-ovate and the posterior one vertically linear. The hinder tip of the maxillary extends backward a little posterior to the centre of the eye. The preopercle is large, triangular and strongly arched. Mouth large, oblique, lower jaw a trifle the longer and both armed with a single row of minute teeth. Hind margin of the gill openings vertical. Two little cutaneous crests on the side of tail.

The first dorsal fin commences at a point which is a little nearer to the second fin than the anterior border of the orbits. The base slightly exceeds its own height, and the second ray which is the tallest is about one-third longer than the first or a little more than half the length of the head; the others rapidly decrease in altitude posteriorly, so that the two last scarcely rise above the

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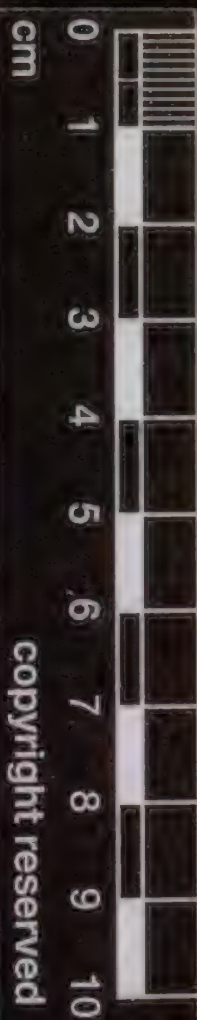
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dorsal groove. The soft dorsal commences exactly midway between the origin of the lateral line and the base of the caudal. Its height equals one-third the length of the head, and tapers rapidly posteriorly, and is slightly concave above. The space between the second dorsal and the caudal is occupied by five small finlets. The ventrals are situated beneath the origin of the first dorsal and their length equals the soft dorsal base. The anal is similar to the pectorals but is situated a little more posterior. The small pectorals are slightly concave on their posterior margin, placed rather high up and in length equals the height of the first dorsal. The caudal is deeply forked, the lobes pointed, lanceolate.

Color brilliant silvery on the flanks, steel blue above and silvery white beneath. The upper third in certain lights glossed with sap green and marked by three or four longitudinal lines of a sap-green tint, which are only seen distinctly in certain lights. The same may be said of two rows of blue-black dorsal spots. Ventrals silvery. All the fins nearly colorless, except a slight dusky tinge on the dorsals and caudal. Length 11 inches.

Hab. N. I. I. I.

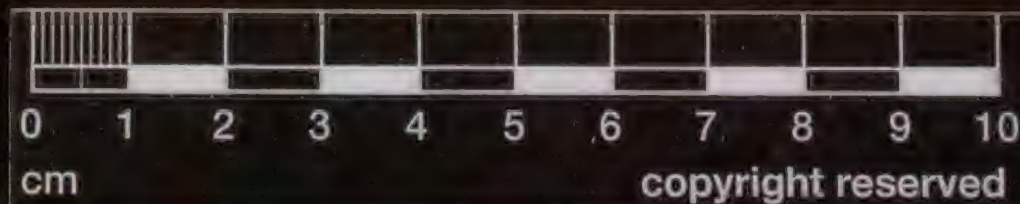
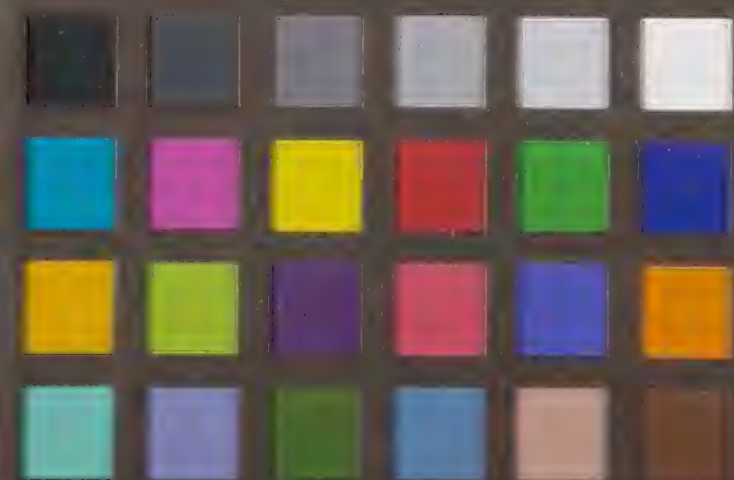
Native name "Salaba."



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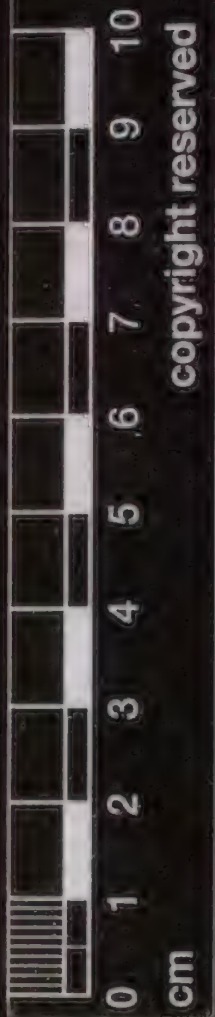
Scomber kanagurta**N** NATURAL
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The rather large eyes are obliquely oval, their greatest diameter entering, six times in the length of the head, and once and a half in advance of their own orbit. The two nostrils are vertical, linear, and the anterior one which is the smallest is nearly midway between the eye and the tip of the snout. The hinder tip of the maxillary reaches a vertical line passing through the center of the eye. Opercular pieces rounded.

A line dropped from the origin of the first dorsal fin cuts the pectoral base and the first ray in the ventrals. It passes over a base equal to the length of the head. Its anterior portion in height, equals the distance from the eye to the hinder margin of the opercle. The depressed part is very low and gently arched. The soft dorsal is separated from the spinous by a free space, less than the length of the eye in extent. It is very small, obliquely deeply concave above, and its height and length of base about equal, being less than half the altitude of the first fin. The finlets are eight above and seven below. The anal fin commences opposite to the hinder termination of the soft dorsal. The small ventrals are inserted beneath the pectorals and are concave on their outer

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margins. The pectorals are also small, sub-falciform, their tips reaching as far back as the tenth spine in the first dorsal fin.

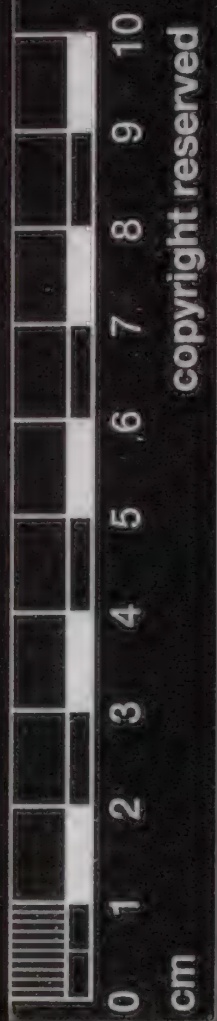
Color along the dorsal region blue-black, reflecting metallic tint in certain lights. Sides brilliant silvery. The upper posterior half of the body is marked with numerous, oblique, undulating black diffused stripes and spots. Several reddish dusky spots between the ventrals and pectorals. Ventrals silvery white. Spiny dorsal with a smoky tint. Soft dorsal and caudal dusky steel. Snout silvery. Petals white with their inner surface dusky. The pectorals are silvery, shaded with blue-black along their hinder margin, and blue-black on their inner surface.

Length, 14 inches.

Habitat. - Society Isls.

Remarks. - A single specimen of this graceful fish was procured in the month of January. Its vernacular name is "otava".

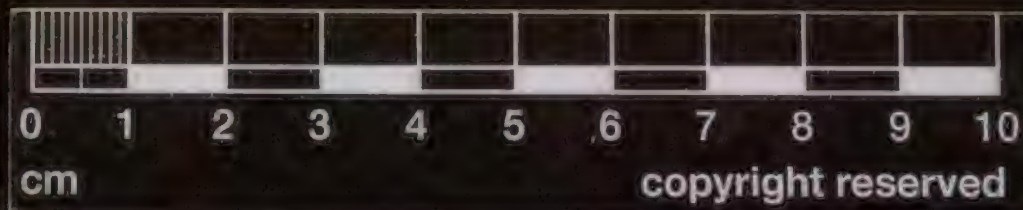
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Thynnus thunnina



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HISTORY
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Syngnatus pelamys

No 52

D. 15-3-12+8; A. 3-12+7; V. 1-5; P. 28; C. 10, 4, 8, 7, 1, 10

The upper and lower outlines are similarly arched, both commencing at the end of the snout and terminating at the tail. The greatest depth of the body enters four times in the total length, caudal fork excluded. The head which comprises a little more than a fourth of the fish, is pointed, and the rather large eye, is about one-sixth the length of the head. The hinder tip of the maxillary reaches as far back as the centre of the eye.

For shape and proportion of the fins, color, and color see plate, which is very correct.

A well known pelagic species.
It is the Scumber pelamys, F. D. Bennett.
"Whaling Voy. Vol 2, p. 281"

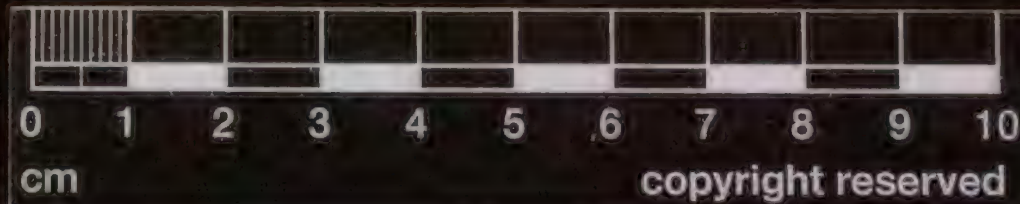
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Thynnus pelamys



*Cybianus blanda*Genus ? No 411

Body elongate, compressed, smooth, scaleless except on the upper part of the body where they are scarcely visible. Lateral line slightly arched over the pectorals. Two little cutaneous crests on the side of the tail, between and in advance is a small horizontal cartilaginous spine. Head pointed; lower jaw projecting in advance of the upper one, and both armed with compressed trenchant teeth, which increase in size posteriorly. The tongue, vomer and palatines asperous. Preopercle rounded, as are also the margin of the gill covers. Eye small. Nostril double, just in front of the eyes, the posterior one vertical, narrow, the other circular. Branchiostegial rays seven. The first dorsal long, composed of numerous slender rays. Soft dorsal small, quite separate from the first; the space between the soft dorsal and caudal occupied by 8 small sub-triangular finlets. The anal fin is shaped like the soft dorsal, but inserted more posterior, and followed by 8 similar finlets. Vent just in front of the anal fin. Ventrals

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very small, inserted beneath the pectorals, and their last ray bound by membrane to the belly. The pectorals are also small, sub-falciform. Ventrals divided into two vertically slightly curved lobes.

Species zebra, Garrett

B. 7; D. 25-3/10-8; A. 3/10-8; V. 1-5; P. 27; C. 16, 8, 8, 16.

The dorsal and ventral outlines are nearly horizontal between the ventrals and anal fin. The greatest depth of the body as compared to the total length is as one to eight and the thickness equals two-thirds the greatest depth. The head comprises a little more than a fifth of the total length, and tapers away from the region of the eyes. The gape of the mouth is deep, slightly curved and oblique. The eyes are horizontally oval, their length entering nine times in the length of the head, and are situated a little nearer to the hinder margin of the opercle than the end of the snout. The hinder tip of the maxillary reaches a trifle posterior to the anterior limb of the orbit.

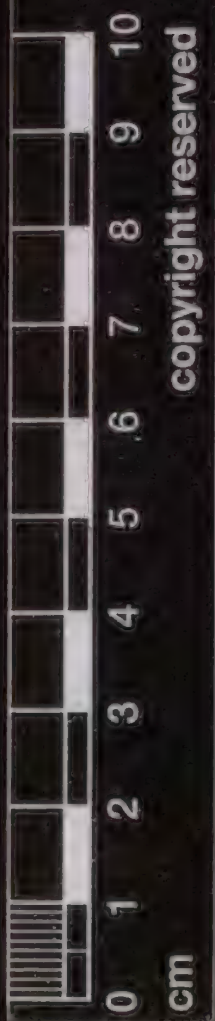
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The first dorsal fin commences immediately over the base of the pectorals, and extends over a base one-third the total length of the fish, caudal excluded. Its height as compared to its length is as two to eleven, the posterior half the deepest, and a concave emargination on the anterior half of the upper edge of the fin, so that it has a wavy-like margin. The soft dorsal, which in our specimen is nearly one inch from the spiny dorsal, commences about midway between the head and the base of the caudal fin. It is not so deep as the first dorsal, and the anterior half is sub-triangular, and the upper margin is obliquely concave. Its length exceeds its height. The similar shaped anal commences a trifle anterior to the middle of the soft dorsal fin. The pectorals in our specimen measured 3 inches long, and the caudal measured 2 inches from tip to tip of the lobes.

Color dusky steel blue, grayish silver beneath and light indigo blue above sides with numerous irregular

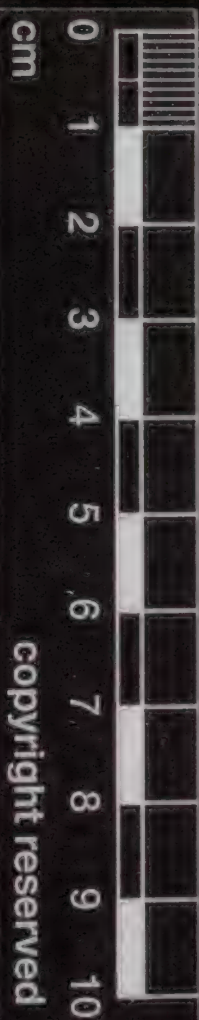
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closely-set vertical grayish silver narrow
stripes which are more or less wavy in-
terrupted and some forked. Vides silver.
The dorsals, caudal and pectorals
bluish steel. Ventrals dusky bluish steel
grayish silver.

Length 34 inches.

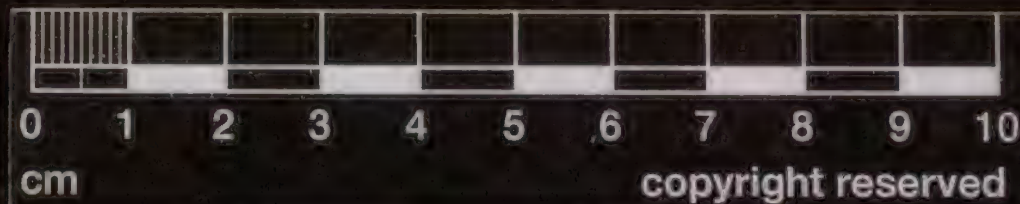
A single specimen caught
300 miles north of the Hervey Is.



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Acanthocybium solandri



Cymbium No 465-

D 14 - 4/13+9; V. 4/13+9; K. 6; P. 1; C. 2.

This large species is similarly arched on both upper and lower outlines, and the greatest depth as compared to the total length is as one to six, the thickness being equal to half the above mentioned depth. The scales are scarcely visible. The lateral line is elevated thread-like, eccentric in its course, and a little posterior to the first dorsal it is suddenly deflected downward below the median line of the body. The lateral carina on the caudal trunk is subtriangular in shape. The head comprises nearly a fifth of the fish, and the lower jaw is much more obtuse than the upper. The hinder tip of the maxillary is on a plane with the posterior limb of the orbit. The eyes are sub-circular in shape, their greatest diameter entering seven times in the length of the head and about three times in advance of their own orbits. The snout as viewed from above is triangular. The preopercle is slightly diamond in

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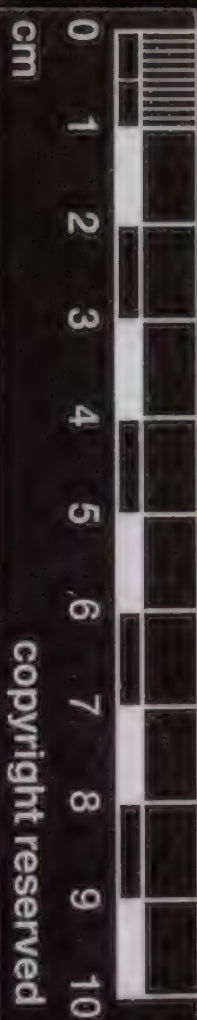
its anterior margin. The teeth are nearly the same as C. no 411.

The first dorsal which can be folded back into a groove, is small, and rises at a point above the base of the pectorals. It passes over a base equal to a fifth of the total length of the fish. The rays are flexible, the first half as tall as the second, which latter is followed by four or five of nearly equal height, and the succeeding ones graduated forward so that the last one projects but little above the groove.

The second dorsal is separated from the first by a free space equal to the diameter of the eye. Its height, which equals half the length of the first fin, exceeds the length of its own base, and the shape is sub-triangular, obliquely concave above. The finlets are 9 in number both above and beneath.

The anal fin though similar to the soft dorsal is smaller and a little more posteriorly.

The ventrals are small and the pectorals are sub-falciform. The caudal is strongly forked each



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lobe equal to the length of the head.

Color of the upper parts of a bluish steel and bluish silver beneath, (In the dorsal the blue in the lower parts is most too intense) and marked by numerous lead colored oblique abbreviated dashes and spots. Ventrals yellowish silvery. The first dorsal, pectorals and ventrals blackish. Soft dorsal dusky steel. Anal steel blue. Caudal dusky. The caudal blackish.

Length 50 inches.

Hab. Fiji Isl.

Native name Valu

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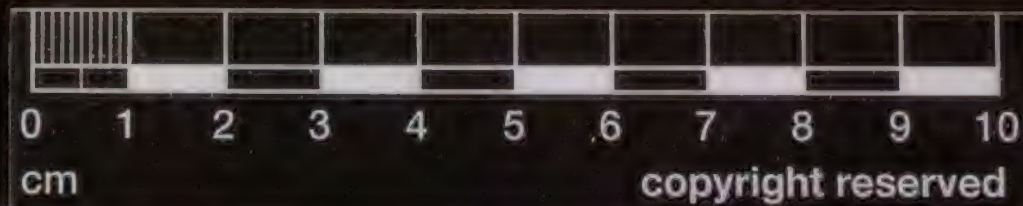
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Cybius



naucratus
Echeuris No 467

For the ray formula, and description
 you must consult the specimens I
 have sent you. Not having any notes
 or specimen to refer to I have not
 been enabled to make the rays in
 the drawing.

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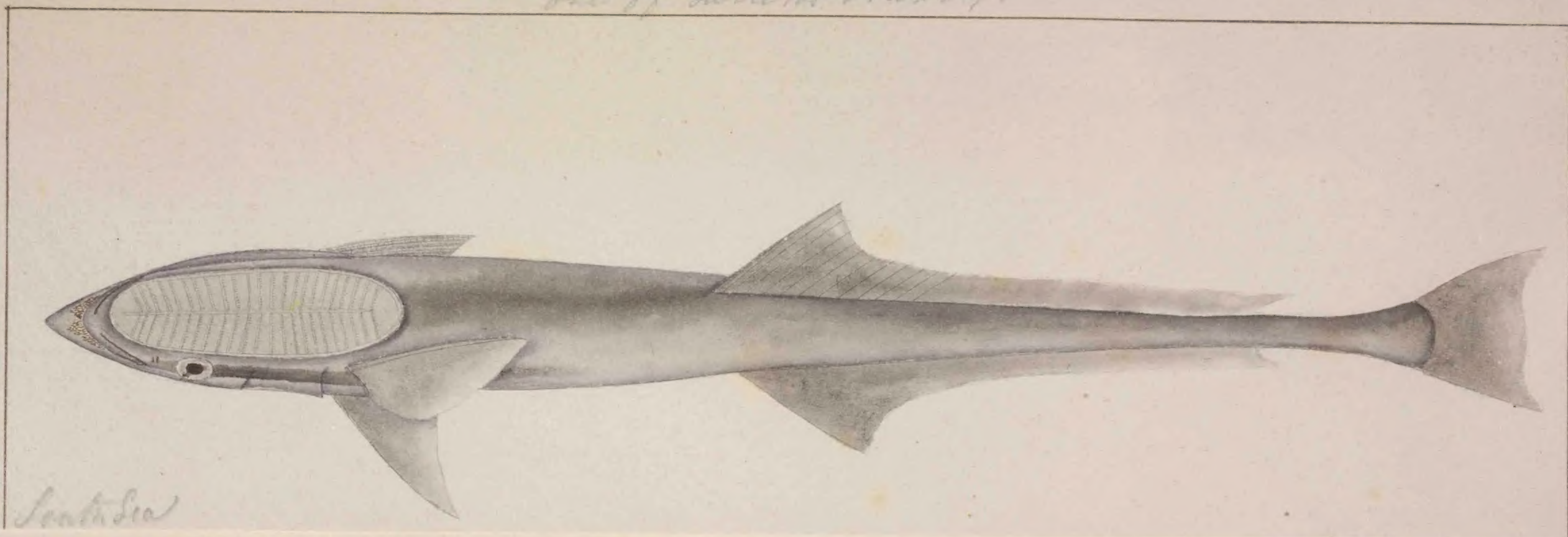
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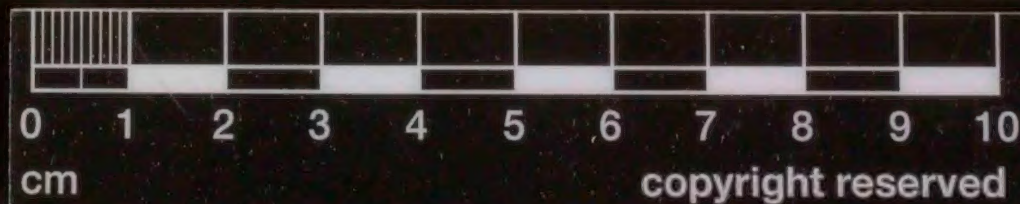
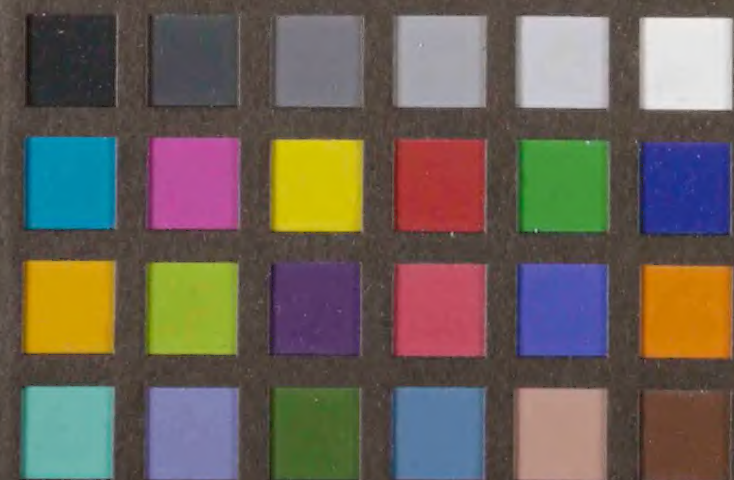
Echeneis naucrates

467
203

one of Sarratt's drawings



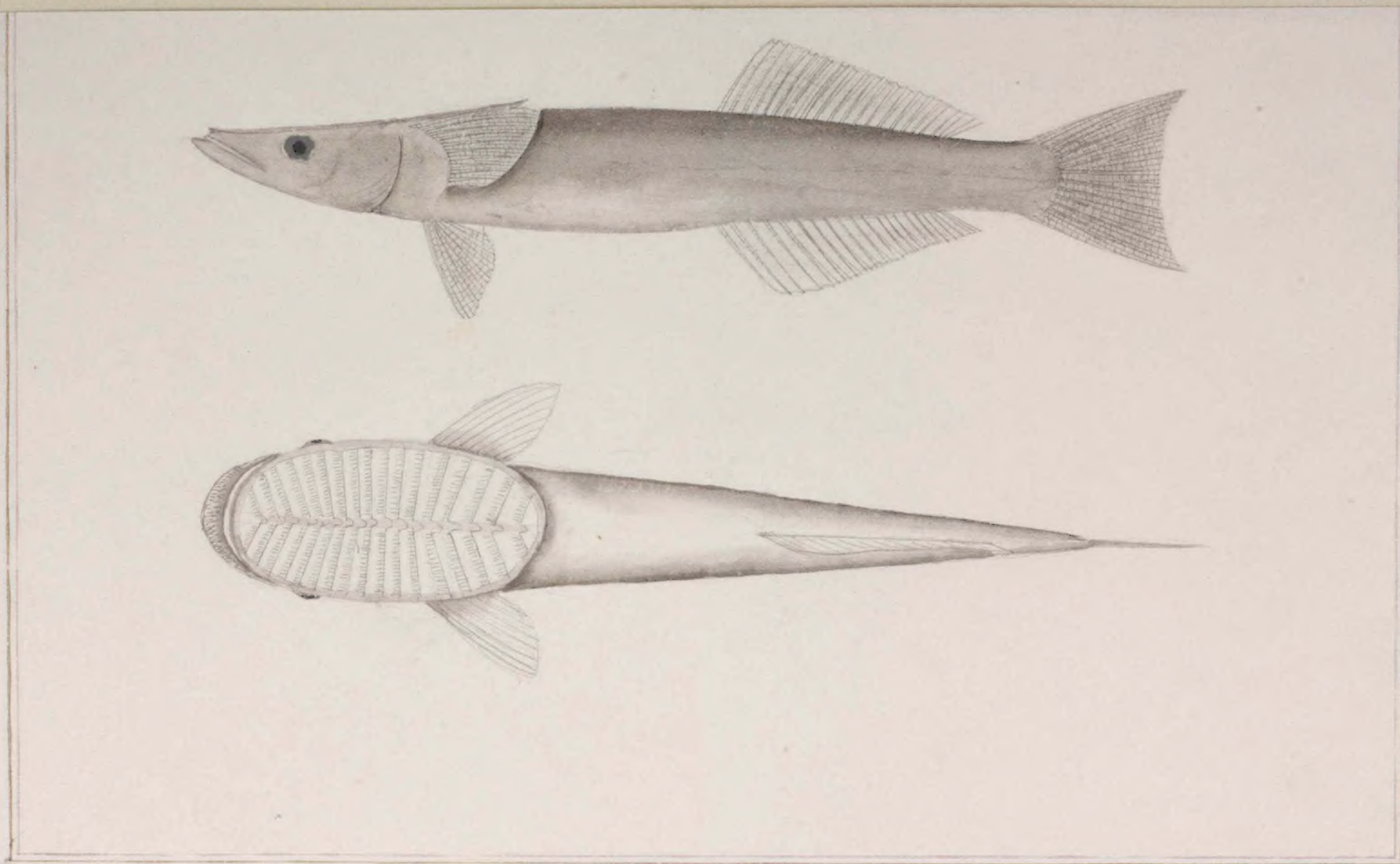
Sarratt



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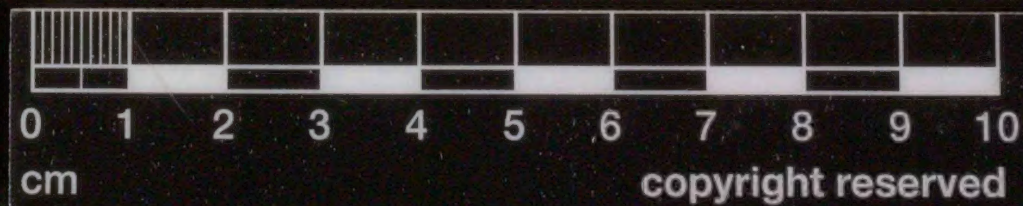




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